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ABSTRACT

This document contains 46 papers presented at a conference on business education teaching and research. Representative papers include the following: "Assessment of Information Technology Needs of Business Education Teachers" (Donna H. Redmann et al.); "A Comparison of Workforce Skills: North Carolina Industry Leaders' Perceptions vs. North Carolina Marketing Education Standard Course of Study" (Stephen B. Moody et al.); "Computer Competencies Needed for Entry-Level Employment" (Cheryl Wiedmaier, Brett Owens); "Educational Preparation of the Office Professional: A Response from Professional Secretarial International Members" (Linda Wiggs, et al.); "Informed Decisions in Business: Integrating Science and Business Education for the Next Millennium" (Randy L. Joyner, Jon E. Pedersen); "Job Task-Analysis Approaches for Microcomputer Application Curriculum Development" (Judith J. Lambrecht, Li-Huei Sheng); "Students' Attitudes toward Work Groups in the Classroom" (Marilyn R. Chalupa et al.); "Workforce Preparedness of Business/Office Education Graduates" (Beryl C. McEwen); "An Innovative Approach to Business and Marketing Teacher Education" (Mary M. Crisp, Jacqueline M. Schliefer); "Instructional Strategies: The Applied Research Series Reflecting Best Practices in Business Education" (Marcia A. Anderson); and "The Web: Finding Nuggets in the Sand" (Connie J. Casebolt). (KC)

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PART I
REFEREED RESEARCH PAPERS

Analysis of Performance in a Microcomputer Applications Class

Margaret J. Erthal
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Abstract

A quasi-experimental study was conducted to ascertain if instructional delivery technique and assignment completion method was related to student success in a microcomputer applications class. Two intact sections of microcomputer classes were utilized as the sample, one serving at the control group and one serving as the treatment group. Analysis of covariance indicated that the groups did not differ on selected characteristics. Statistical significance was detected between instructional delivery technique and final course grade, when adjusted for grade point average. Recommendations include determining students' prior computer experience and using both verbal instructions and demonstration when teaching microcomputer applications.

Introduction

Computers are now commonplace in schools, with 6.6 million classroom computers in American K-12 educational institutions (Tabloid News Service, 1997). In addition, students may be exposed to microcomputers prior to entering school. At a young age they may see family members utilizing the microcomputer for work, study, knowledge, and entertainment. The neophytes of 10 years ago have been replaced by users with varying levels of sophistication and expertise related to computer hardware and software. Therefore, students arrive at the first microcomputer applications class with a variety of experiences, backgrounds, and expectations. Some students, however, bring with them anxiety and fear and this baggage may affect their ability to learn in the microcomputer class. Perhaps students' success in a microcomputer class may be tied to how they are taught, i.e., lecture, application, or demonstration and their preferred learning style.

Study Objective

The objectives of this study were to determine whether instructional delivery method affects student performance and ascertain if students who participate in a cooperative learning experience perform better than students who participate in a traditional learning experience. The study sought answers to the following research questions: (1) Is there a relationship between instructional delivery method and student success in a microcomputer applications class? and (2) Is there a relationship between method utilized to complete computer assignments and success in a microcomputer applications class?

Population and Sample and Procedures

The population for this study was m[illegible]rocomputer students. The sample was beginning microcomputer students at a midwestern university. Each intact section began with 40 students who registered for the class based upon their schedule and the class days and times. One section (treatment Group I) was conducted using cooperative learning, while the other section (control Group II) was conducted in a traditional manner, whereby students were individually responsible. Cooperative learning was utilized during class and students in Group I were encouraged to continue cooperative learning outside of class. Students in Group I were given assignment instructions verbally, while students in Group II watched the instructor and worked through sample assignments together. Both sections completed the same assignments, took the same tests, and were taught by the same instructor. The topics covered included computer concepts and applications.

Instrument

The data collection device was a questionnaire adapted from two earlier studies (Wiggs and Huter, 1994; Erthal, Wiggs, and Huter, 1996) and the student's final course grade. The questionnaire was pilot tested with computer students who had previously taken the course. Any ambiguous and/or unclear directions or instructions were refined and the questionnaire was then given to the computer students at the first class meeting.

Data Analysis

Data was analyzed utilizing descriptive and inferential statistics to include means, frequencies, standard deviations, T-tests and analysis of covariance. The independent variables were instructional delivery method (give instructions verbally or work through a sample problem) and cooperative learning or traditional learning. The dependent variable was final course grade. Grade point average, computer ownership, prior computer experience, and prior computer class were treated as covariates. Research indicates that these variables are thought to affect computer achievement (Speier, Morris, and Briggs, 1996; Taylor and Mounfield, 1994; Jones and Berry, 1995; Szajna and Mackay, 1995).

Findings

Group I and Group II began with 40 students each, but ended with 33 and 36 students, respectively. Students who did not complete the course were removed from the study. Group I received the following grades: A (n=7, 21.2%), B (n=12, 36.4%), C (n=11, 33.3%), D (n=1, 3.0%), and F (n=2, 6.1%). Group II received the following grades: A (n=11, 30.6%), B (n=15, 41.7%), C (n=8, 22.2%), D (n=2, 5.5%), and F (n=0, 0.0%). One-tailed t-Tests were used to determine if the groups were similar or different on the experiences (covariates) they brought with them to the microcomputer class. The T-tests showed no significant differences between the groups. Based on these results, the groups were determined to be initially similar on these covariates.

Analysis of covariance (ANCOVA) was performed on the combined data from Group I and Group II. When using intact groups, ANCOVA provides two benefits: the first is an adjustment for preexisting differences that may be present among the intact groups and the second is the increase in precision of the research from reducing the error variance (Hinkle, Wiersma and Jurs, 1988). The covariates (computer ownership, grade point average, previous computer experience, and previous computer class) were entered into the model individually. There was no statistical significance between teaching method and students who had previously taken a computer class. Taken by itself grade point average was statistically significant among participants; however, when teaching method was entered into the model, there was no statistical significance. Teaching method did not prove statistically significant when adjusted for participants' computer ownership. Teaching method did produce a statistically significant relationship on final course grade when adjusted for previous computer experience.

Discussion

A quasi-experimental study was undertaken to ascertain if instructional delivery method and assignment completion method affected students' success in a microcomputer class. Two intact groups of computer classes were exposed to different instructional delivery methods—verbal instructions or demonstration—and assignment completion method—cooperative learning or work alone.

Females outnumbered males in both groups and the majority of students were 20 years of age or younger, which accounted for the large number of first-semester freshmen. Similar results were obtain from earlier studies (Webler, 1992; Taylor and Mounfield, 1994; Wiggs and Huter, 1994). Computer ownership was about the same in both classes. A small number in both groups reported previously taking a computer class and a majority of students had a formal keyboarding class. Grade point average did differ significantly between the two classes with Group I reporting a higher percentage in tier two (gpa=3.49 - 2.5) and Group II in tier three (gpa= 2.49 - 1.5). Cohort groups appeared when ranked on previous computer experience. Both groups reported one year or more of experience in word processing and no experience in programming. Since the majority of students were freshmen, they probably gained word processing experience in high school. Apparently, programming is not taught in high school. This information is comparable with results from previous studies (Hunt and Bohlin, 1991; Wiggs and Huter, 1994; Erthal, Wiggs, and Huter, 1996).

Results from the t-Tests implied that the two groups were similar on the covariates of grade point average, previous computer class, computer ownership, and previous computer experience. Analysis of covariance (ANCOVA) did not detect a statistical significance for teaching methods and (a) previous computer class or (b) computer ownership. These results are contrary to study results from Taylor and Mounfield (1994). Grade point average was statistically significant when analyzed alone, but not when teaching method was included in the model. Teaching method and course grade did produce a statistically significant result when adjusted for previous computer experience. The mean course grade was B ($\bar{x}$ =2.3636) for Group I and B ($\bar{x}$=2.0278) for Group II. While Group II received more A's and B's than Group I, the differences were slight. The mean computer experience was 6 months to 1 year ($\bar{x}$ =3.1613) for Group I and 6 months to 1 year ($\bar{x}$ =3.4194) for Group II. Remember that Group I students watched the instructor and worked through assignments together, while Group II students received verbal instructions. Bostrom (1990) urged that teaching and training methods should be tailored to individual learning modes. Therefore, it appears that instructional delivery method does affect success for students with previous computer experience. Effective instructional delivery methods, student's preferred learning style and success may depend on finding the right match. Mukherjee and Meir (1996) found the tutorial strategy to be effective for students with low computer exposure and students in the lower academic level who need greater specific input about what needs to be done. Methods that incorporate hands-on use have been shown to be effective (Compeau et al, 1995). Bohlen and Ferratt (1997) discovered that computer-based-training students did better learning software than the lecture-based students. While cooperative learning and traditional learning could be controlled in class, it was not possible to exert these controls outside of class. Therefore, no conclusive evidence exists to determine which method is superior.

Recommendations

Based on the above discussion, the following recommendations are offered: (1) student's with previous computer experience should be identified; (2) student's grade point average should be made available to the instructor; (3) lessons and activities should be designed that incorporate demonstration and verbal instructions; (4) students should be encouraged to work with others and work alone when completing computer assignments, and (5) the current study should be replicated with a larger number of students.

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Assessment of Information Technology Needs of Business Education Teachers

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Abstract

This study determined the information technology needs of Louisiana business education teachers. Secondary business education teachers have inadequate information technology knowledge and skill. The number of training sources used by teachers is the best predictor of the teachers' information technology and skill, with degree held, years experience, and ethnicity contributing significantly to the variance in the teachers' information technology and skill. The recommendations focused on the continuing need for in-service training in the area of information technology and the need for business teachers to embrace self-directed learning as one mode of upgrading their information technology skills.

Introduction

Few changes have had the impact that information technology has had on business education. This technology assists educators in doing a better job of meeting student needs, however, it comes with a price. The career preparation of teachers is impacted by their opportunities and decisions regarding their use of technology, which, is contingent on their information technology knowledge and skill level. Information technology is used to manage and instruct in business education and encompasses not only the computer but other technologies and delivery systems.

A U.S. Office of Technology report maintained that the use of technology cannot be fully effective unless teachers receive adequate training and support (Sormumen & Chalupa, 1994). Due to reduced funds and limited teacher in-service in a time when technology changes rapidly, many experienced teachers have very little or no training in this area. This, in turn, impacts the participation of universities, state departments and others in the professional development of business teachers. Teacher training provided by school systems designed to address the needs of business teachers is limited. Also, keeping current is especially critical because teachers need information technology competencies so they can transfer these competencies to students.

Numerous studies were conducted in the 1980s when the leading edge technology of the time was the microcomputer (e.g., Raven, 1988; Tesolowski & Roth, 1988; Yuen, 1985). Only selected elements have been studied since then. When one considers instructional technology, researchers should heed the words of Thomson, Simonson and Hargrave (1991): "Educational media alone do not influence the achievement of students. Researchers who have attempted to demonstrate the superior influence of educational technologies on achievement have been unsuccessful. On the other hand, researchers who have attempted to identify the appropriate techniques of message organization and the correct process of instructional delivery with technology have been more in the mainstream of what is considered appropriate" (p. 1). Miller (1997) identified a 1995 report by the U.S. Office of Technology which ". . . suggested that 30% of the nation's expenditures on school technology should be devoted to teacher training" (p. 13). Golden (1997) reports that teachers don't use new technology because they either don't feel comfortable with new technology or lack proper training. An Idaho survey of 60,000 teachers regarding teacher technology needs found that more than half of the respondents rated themselves as novices in the use of technology; recently hired teachers with a bachelors degree and the number of computers in classrooms were the best predictors of teachers' actual use of technology (Matthews, 1996). McCaslin and Torres' (1993) finding, that teachers were apprehensive about the use of microcomputers, is supported by research in the area of computer anxiety of vocational teachers (Kotrlik & Smith, 1989) that found that vocational teachers' computer anxiety ranged from mild to severe on the aspects of computer anxiety measured by Oetting's Computer Anxiety Scale (COMPASS). This is importance because they also reported that younger teachers were more likely to have higher levels of computer literacy and that computer anxiety decreased as computer literacy increased.

The literature reveals that studies have been conducted that identified computer competencies important to business teachers (e.g., Echternacht, 1996, Groneman & Buzzard, 1995, Chalupa, 1993), however, a need exists to examine the information technology related career development needs of business teachers, with information technology being substantially different from basic computer technology.

Purpose and Objectives

The purpose was to determine Louisiana business teachers' perceptions of their information technology knowledge and skills. The objectives were to (1) Determine the demographic characteristics of teachers; (2) Determine the general information technology knowledge and skill possessed by teachers; (3) Determine software specific knowledge and skill possessed by teachers; (4) Determine the information technology training received by teachers; and (5) Determine if selected variables explain the variance in the general information technology knowledge and skill possessed by teachers.

Procedures

Population and Sample

The population included 848 secondary business teachers in Louisiana. The minimum sample size was determined to be 173 based on Cochran's sampling size formula. Based on a sampling with replacement model, 281 teachers were randomly selected. After two mailings and a phone follow-up, responses were received from 166 teachers (96% of minimum sample size, 61% of the teachers in the total sample selected based on the sampling with replacement model).

Instrumentation

The instrument was researcher developed. The scales and items used in the instrument were selected after a review of the literature and based on the objectives. The face and content validity of the instrument were evaluated by an expert panel of university faculty members. The instrument was field tested with 40 teachers who had not been selected in the sample for the study. Changes indicated by the validation panel and field test were made. Internal consistency coefficients for the scales in the instrument were as follows (Cronbach's ***alpha***): **General Information Technology Knowledge and Skill - .94, Software Knowledge and Skill - .94.**

Data Collection

The teachers' responses were collected using two mailings and a telephone follow-up of a random sample of non-respondents. Each mailing consisted of a questionnaire, cover letter, and stamped addressed return envelope. No significant differences existed by response wave on the key variables (general information technology knowledge and skills and software knowledge and skills), therefore, the phone responses were combined with the mailed responses for data analysis and it was concluded that the sample was representative of the population of Louisiana business teachers.

Data Analysis

The data were analyzed using descriptive statistics for objectives 1 - 4. Stepwise multiple regression was used to analyze the data for objective 5. The alpha level was set a priori at .05.

Results

Objective One - Demographic Characteristics

Objective one was to describe the demographic characteristics of the business teachers. Over half (53%) possessed a bachelor's degree, 25.9% had a masters' degree, and 21.1% had a masters' degree plus 30 hours or the education specialist certificate. None had doctoral degrees. Almost all (91.0%) were female. Most of the business teachers were white (78.0%), while 20.1% were black, and 1.8% were members of other ethnic groups. Their average age was 42.5 years (range= 23-63) and the average years teaching was 15.5. Over half (55.6%) taught in rural areas, 24.8% in urban areas, and 19.6% in suburban areas. Most (83.5%) taught at the high school level, 15.2% taught at the junior/middle school level, and .6% taught at both the high school and junior/middle school level. Almost half (45.3%) had attended the state vocational association convention at least once in the past three years while only 19.8% had attended a regional or national vocational association convention in the past three years. Over one-third (37.2%) of the teachers' schools were connected to the Internet.

Objective Two - Knowledge and Skill

Objective two was to determine the general information technology knowledge and skill possessed by Louisiana business teachers. The teachers rated themselves average on the eight areas related to the use of computers in instruction and below average on all of the newer technologies (Internet/World Wide Web, video conferencing, satellite downlinks, compressed video, laser disc players) except multimedia computers for which they rated themselves as average. These data are presented in Table 1.

Objective Three - Productivity Software

Objective three was to determine Louisiana business teachers' software specific knowledge and skill. The teachers rated themselves average or below average in all utility software areas, with the lowest ratings typically being in the area of software that has just become commonly used in the past few years (such as World Wide Web browsers, e-mail, file transfer, lesson planning, and presentation software). These data are presented in Table 2.

Objective Four - Teacher Training

Objective four was to determine the information technology training received by Louisiana business education teachers. The percentages of teachers who reported they had received training from selected sources and the percentage who have received this training within the last three years are as follows: university/college course - 74.1%/29.4%, university/college workshop - 55.1%/33.5%, industry workshop - 25.6%/19.7%, professional

Table 1

General Information Technology Knowledge and Skill as Perceived by Louisiana Business Education Teachers

General information technology knowledge and skill	M	SD	N
Know the major components of a computer	3.90	.73	162
Know how to operate a computer	3.75	.67	161
Can integrate computer-based teaching materials into instruction	3.62	.83	162
Can evaluate software for instruction	3.60	.85	162
Know how to prepare students to use information technology	3.53	.82	160
Can locate computer-based teaching materials for use in instruction	3.43	.85	162
Know how to select information technology that fits program needs (computers, modems, printers, laser disc players, etc.)	3.23	.94	161
Can evaluate software for program management	3.17	1.01	161
Know how to use . . .			
. . . multimedia computers	2.53	1.15	162
. . . Internet e-mail	2.48	1.17	161
. . . World Wide Web	2.35	1.15	162
. . . laser disc players	2.18	1.08	162
. . . video conferencing	1.70	.77	162
. . . compressed video	1.62	.76	162
. . . satellite downlinks	1.61	.74	162

Table 2

Software Specific Knowledge and Skill as Perceived by Louisiana Business Education Teachers

Software specific knowledge and skill	M	SD	N
Word Processor *(Examples: WordPerfect, Microsoft Word, Microsoft Works, Appleworks, etc.)*	3.99	.76	164
Windows *(Examples: Macintosh, Windows 3.1, Windows95, Windows NT)*	3.21	1.01	164
Spreadsheet *(Examples: Lotus 1-2-3, Excel, Microsoft Works, Quatro Pro, etc.)*	3.18	.99	165
Graphics *(Examples: Corel, Paintbrush, MacPaint, Harvard Graphics, Freehand, Print Shop, etc.)*	2.94	.94	164
Database *(Examples: Approach, dBase, Access, Microsoft Works, etc.)*	2.93	1.06	163
Desktop Publishing *(Examples: Pagemaker, Ventura, desktop publishing capabilities of WordPerfect or Microsoft Word)*	2.76	1.11	164
Grade Book	2.69	1.29	162
Presentation Software *(Examples: PowerPoint, WordPerfect Presentations, Freelance Graphics, Harvard Graphics, etc.)*	2.33	1.03	164
Internet E-mail *(Examples: America On-Line, Netscape, Prodigy, Juno, Compuserve, Eudora, etc.)*	2.32	1.14	164
Instructional Software *(Examples: My Resume, personal or business finance, loan amortization, etc.)*	2.31	1.34	164
Utilities *(Examples: Norton, PC Tools, virus protection, Windows uninstaller, etc.)*	2.15	1.05	163
World Wide Web browser *(Examples: AOL, Netscape, Prodigy, Compuserve, Internet Explorer, Mosaic, etc.)*	2.14	1.10	164
File Transfer to and from Other Computers Using a Modem	1.90	.97	163
Lesson Planning *(Examples: 4MATION, PET, etc.)*	1.69	.94	163

conference - 67.1%/55.3%; self-directed learning/personal experience - 93.3%/73.3%; suppliers of equipment and software - 60.2%/48.1%; school, parish or state sponsored in-service training - 83.5%/68.5%; and written materials such as information booklets, training manuals, etc. - 85.4%/68.1%. It is especially interesting to note the large gap in the percentage who received training from university/college courses (74.1%) versus the percentage who received training from this source in the past three years (29.4%). It is also interesting to note that self-directed learning/personal experience was reported most often as a training source, which is logically supported by the fact that written materials were the second highest source.

Objective Five - Explanation of Variance in Knowledge and Skills

Objective five sought to determine if selected variables explained the variance in the general information technology knowledge and skills possessed by business teachers. Four variables explained a significant amount of the variance in the teachers' general information technology knowledge and skills score: number of training sources (22.0%), degree held (3.3%), years experience (2.7%), and ethnicity (1.1%), for a total explained variance of 29.1%.

Conclusions

1. Louisiana's business teachers have inadequate general and software specific knowledge and skill, especially true with the newer technologies.
2. It appears that the existence and/or quality of career development opportunities for pre- and in-service education is inadequate, and/or that teachers have failed to take advantage of existing opportunities in the area of information technology.
3. Business teachers have placed less reliance on information technology training offered by universities, and/or universities have not offered information technology training desired by teachers.
4. There is a trend toward teachers' dependence on self-directed learning as a primary source of information technology training.
5. Differences in business teachers general information knowledge and skill levels are partially explained by the number of training sources, degree held, years teaching experience, and ethnicity.

Recommendations

1. Formal educational opportunities (courses, workshops, seminars, etc.) should be offered to update business teachers' information technology knowledge and skills on a consistent basis and teachers should take advantage of these opportunities when offered. If the available offerings do not meet the needs of business teachers, business teachers should assume their professional responsibility by being proactive in communicating this to appropriate service providers. Teachers should also seek out mentoring opportunities and business/industry assistance.
2. Pre-service programs should strengthen their emphasis on preparing new teachers to be self-directed learners, especially in the area of information technology knowledge and skills. However, universities should not abandon their responsibility to provide information technology knowledge and skills training in pre-service programs.
3. Service providers should consider previous training sources used by teachers, degree held, years teaching experience, and ethnicity in planning information technology in-service training activities.
4. The Louisiana Department of Education, college/university teacher education programs, professional associations, and other service providers should place a high priority on increasing the information technology knowledge and skill levels of pre- and in-service teachers.

Implications

If business programs are going to prepare students for the workplace, both now and in the future, teachers must have this critical information technology knowledge and skill if they are to be successful in the transfer of appropriate information technology to their students. Certainly, if the United States is to remain competitive in the world marketplace, this foundation consisting of information technology knowledge and skill is a necessity if the U.S. expects to have a well trained workforce that will create and maintain a competitive edge.

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The Benefits and Influence of the (American) Certified Public Accountants (CPA) Program on Career Development of Accountants and Auditors in Egypt

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Abstract

The study purports at determining the benefits and influence of the (American) Certified Public Accountants (CPA) certification for hiring, promoting and career development of accountants and auditors working in Egyptian auditing firms. The study examines the reasons which motivated Egyptian accountants and auditors to obtain the American CPA rather than the Egyptian certification from the Egyptian Association of Accountants and Auditors. Methods used by CPA candidates to prepare for their examinations were also investigated.

Introduction

As a result of pursuing an open-door economic policy in Egypt, most state-owned enterprises have been privatized. In recent years, many American and multinational business firms have been heavily investing in Egypt. Financial auditing of these firms is usually assigned to Egyptian auditing firms representing American and other big international auditing firms. Many Egyptian accountants and auditors obtained CPA certification from the American Institute of Certified Public Accountants to join these auditing firms or to be promoted to higher positions. The importance and benefits of certification as a useful tool for hiring and promotion have been discussed by several authors (Jackson, 1966; Hillsman, 1979; Krizan, 1979; Mason, 1985; Evans, 1944). A unique situation is faced in the present study, as two parts, related to business law and taxation, out of the four parts of the CPA examination, are related to American and not to Egyptian legislation. Egyptian auditing firms and business organizations have different views concerning hiring CPA holders or holders of Egyptian professional certification ESAA that is offered by the Egyptian Society for Accountants and Auditors.

Purpose of the Study

The study was designed to identify the demographic profile of the CPA holders in Egypt and to address the following research questions:

1. What are the demographic characteristics of the CPAs that have acquired certification in the last ten years?
2. Why did some accountants and auditors working in Egypt choose to obtain CPA certification and not the Egyptian professional certification from the Egyptian Society of Accountants and Auditors (ESAA)?
3. Did accountants and auditors working in Egypt benefit from studying the two parts -Taxation and Business law- which are related to American and not to Egyptian legislation?
4. What were the paths used to prepare for CPA certification?
5. What were the financial and non-financial benefits CPA holders received after being Certified?
6. When did the CPA holders acquire certification and what effect has the certification had on their careers?
7. How do the CPA holders perceive the importance of certification on their hiring and promotion and how do they evaluate the perceived importance of their employers concerning certification on hiring and promotion?

Methodology

Sample

The population of this study was the CPA holders in Egypt who had obtained their CPA certification in the last ten years. As the population of CPA holders in Egypt is very small and because of lack of their listing, snowball sampling approach was followed to select a judgmental sample that consisted of 110 CPA holders. The questionnaires were distributed to the sample individuals. The usable responses received were 66 (60%).

Questionnaire

Permission to use an instrument developed by Candy Evans (1994) in her research entitled "Is certification a useful tool for recruiting, hiring and/or promoting administrative managers?" was obtained. The questionnaire was modified to suit the present study. The questionnaire was piloted with 10 CPAs. Based on their feedback, minor changes were made.

The first part of the questionnaire addressed demographic information regarding gender, age, education, years of experience, income, and type and size of business.

The second part included questions relevant to the reasons CPA holders chose to take CPA exams and why they preferred obtaining certification from the USA and not through the Egyptian Society of Accountants and Auditors (ESAA). This part also included a question concerning whether the CPA holders benefited from studying the two parts of "Taxation" and "Business law" which are related to American and not to Egyptian legislation.

The third part included questions about the path(s) used to prepare for certification.

The fourth part of the questionnaire addressed the date of certification, the effect of certification on the careers of CPAs and the financial and non financial benefits they obtained after being certified.

The last part of the questionnaire included three questions to measure the perceived importance of obtaining CPA concerning hiring and promoting the CPA holders. A four-point Likert-type scale was used: (4) very important, (3) important, (2) somewhat important, and (1) not important

Findings

Demographics

The first research area examined was the demographic characteristics of the CPA holders. Their distribution by gender, age, educational level, business type is shown in Table 1.

Gender

Males and females constituted 84.8% and 15.2% of the sample respectively.

Age

The majority of respondent ages fall in the 30-39 year category (54.5%).

Business Type

The majority of the sample individuals are working in auditing firms (45%) followed by those who are working in management & business consulting firms(24.2%)

Educational Level

All the sample individuals were university graduates holding Bachelor's and Master's Degrees (75.8% and 24.2% respectively)

Egyptian Professional Certification

Thirty percent of the sample individuals are holders of the Egyptian Society of Accountants and Auditors certificate, while 21% completed the first part only from the two parts required for the certification.

Membership of Professional Organizations

Forty-five percent of the sample individuals are members of three or more professional organizations while 30% and 18% are members of two and one professional organizations respectively.

Business Size

The great majority of the sample individuals (85%) were working for organizations employing more than 50 employees.

Present Annual Salary

Thirty-nine percent of the sample individuals earn more than 80,000 Egyptian pounds/year and 3.6% earn less than 20,000 Egyptian pounds.

CPA Vs. ESAA Certification

When respondents were asked to compare CPA program to that of the ESAA regarding usefulness and professionalism, 58 (88%) respondents indicated that the CPA certification program is more useful and professional, while six (9%) indicated that they are equal. All respondents indicated that CPA program is more useful when working for multinational business firms.

When respondents were asked to compare the usefulness of the CPA certification program to that of ESAA program when working for Egyptian business firms, 36 (55%) considered CPA program to be more useful, six (9%) considered the two programs equal, while 4 (6%) indicated that ESAA program is more useful.

Noteworthy is that these perceptions are confined to those who preferred to acquire CPA certification; thus, this result should not be considered as a fair comparison between the two certification programs. If accountants and auditors who choose to be certified through ESAA were asked the same questions, different perceptions would have been indicated.

When respondents were asked why they chose to sit for the CPA examination, all respondents indicated more than one reason. Ninety-one percent of respondents indicated future advancement; 89%, self improvement; 67%, possible promotion; 67%, increase in salary; 61%, self satisfaction; 33%, required for job; 21%, title change; 18% working in the USA; 12%, extra fringe benefits; 12%, joining another organization.

Respondents gave different reasons for choosing CPA rather than ESAA certification. Reasons given were that the CPA is internationally recognized (43%), getting higher salary (24%), ESAA is acquired by obtaining CPA certification (18%), acquisition of more updated knowledge (18%), better when seeking employment (15%), intention to live in the USA (15%), and CPA certification takes shorter time in preparing for the examination.

Table 1
Demographic Profile of Respondents

	No.	%
1. *Gender*		
Male	56	84.8
Female	10	15.2
2. *Age*		
20-29	16	24.2
30-39	36	54.5
40-49	10	15.2
50+	2	3.0
Missed	2	3.0
3. *Educational Level*		
Master's Degree	16	24.2
Bachelor's Degree	50	75.8
4. *Business Type*		
Auditing firms	30	45.5
Management & Business consulting	16	24.2
Manufacturing	2	3.0
Wholesale / Retail trade	6	9.0
Other	8	12.1
Missed	4	6.1
5. *Business Size (Number of employees)*		
1-50	6	
51-100	20	
101-500	18	
500+	18	
6. *Professional Certification (ESAA)**		
Passed the first part only	20	30.3
Passed the two parts (ESAA holder)	14	21.1
7. *Present Annual Salary (Egyptian pounds)***		
20,000 or less	2	3.0
20,001 - 40,000	16	24.2
40,001 - 60,000	10	15.2
60,001 - 80,000	8	12.1
80,000+	26	39.4
Missed	4	6.0
8. *Number of Professional Organizations of Which Respondent is a Member*		
None	4	6.1
One	12	18.2
Two	20	30.3
Three or more	30	45.4

*ESAA = The Egyptian Society for Accountants and Auditors certification requires passing two consecutive exams first part and second part

**One Egyptian pound = 0.294 US Dollar

Benefits of CPAs Business Law and Taxation Parts

When respondents were asked if they benefited from studying the two parts - Taxation and Business law - mainly related to the American legislation, 18 (27%) respondents indicated that they did not benefit from studying these two parts and 48 (73%) indicated that they benefited from studying them. Respondents dealing with or working for American companies doing business in Egypt indicated the importance of these parts for their work.

Paths Used to Prepare for CPA Certification

One or more method was used to prepare for certification by the sample individuals. The more frequently mentioned method used was self study (76%) followed by experience gained from on-the-job experience (58%). Thirty-nine of respondents attended colleges and institutes review courses and the same percentage of respondents relied on CPA study material. Thirty-nine percent of the respondents attended internally review programs sponsored by their business firms.

Financial and Non-Financial Benefits CPA Holders Received

All respondents except six received salary increase after their certification. The six individuals who did not receive any salary increase were two individuals who worked for the first time after certification, two partners in auditing firms and two university faculty members (as they are remunerated according to their academic and not professional qualifications). Individuals who received three or more salary increase after their certification constituted 51.1% and those who received two and one salary increase comprised 15.2% and 24.5% respectively.

The first salary increase calculated relative to the salary before certification ranged between 20% and 200% with a mean of 52%. The second salary increase ranged from 10% to 100% with a mean of 44%. The third salary increase ranged between 10% and 50% with a mean of 27%.

Ninety-five percent of the sample individuals received one or more types of non-financial benefits after being certified. Non-financial benefits given by employers included special title for (46%), formal announcement and company publicity for (52%), private office for (6%) and special gifts for (9%).

When CPA Holders Were Certified

Fifty-three percent of the sample individuals acquired CPA certification within 1-5 years after obtaining their Bachelor's Degree while 29.4% after 6-11 years of their graduation and 17.7% after more than 11 years. All sample individuals who have Master's Degrees acquired their certification within three years after obtaining their degrees.

Effect of CPA Certification on Holders' Career

Changes in employment to another organization has been made by 38 (58%). Twenty six respondents indicated that they had made one change while eight respondents made two changes and four made three or more changes. Six individuals did not respond to this question.

Eight respondents (12%) reported that they had not been promoted after certification while 24 (36%) had acquired one promotion and 20 (30%) had acquired two promotions, six respondents (9%) were promoted three times and six (9%) were promoted four or more times.

When respondents were asked about the number of lateral changes in the same organization, it was found that one lateral move had been made by 22 respondents (33%), two by 10 respondents (15%), and three or more by eight respondents (15%), twelve respondents had not made any lateral move since certification. Sixteen individuals did not respond to this question.

Perceived Importance of CPA Certification on Hiring and Promotion

Sixty percent of the respondents perceived the impact of the certification on their professional career as very important and 40% perceived it as important.

Seventy-two percent of respondents stated that their employers presently consider the CPA certification in hiring policies and practices while 15.5% reported that their employers consider certification as important and 12.5% thought that their employers do not consider certification in their hiring policies and practices.

When respondents were asked how their employers presently consider the CPA certification in promotion practices, 40.6% reported very important while 37.5%, 18.8%, and 3.1 % reported important, somewhat important and not important respectively.

The perception of the CPAs showed that their employers put more emphasis on certification in hiring policies and practices than in promoting the accountants and auditors currently working in their business firms.

Conclusions and Recommendations

The great majority of CPA holders received substantial financial and non-financial benefits and promotions after they became certified.

Egyptian CPA holders preferred to obtain certification through CPA program rather than ESAA program because CPA is internationally well known and recognized, CPA certification is considered important in hiring and promotion in American and multinational companies working in Egypt. CPA certification enabled its holders to join the American and multinational firms and to receive higher salaries.

As the number of the American and multinational companies working in Egypt is increasing, consequently, the demand for CPAs will increase. Colleges, universities, and private educational institutes in Egypt should be prepared to meet the increasing demand for CPA reviewing programs for the future CPA candidates.

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Business Education Graduates: A Comparative Study

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Abstract

The purpose of this study was to compare business education graduates to all other business graduates of a regional university in the Southwest. The analysis included demographic comparisons and statistical analysis of data on educational and employment mentoring and networking. Business education respondents indicated that the most important past influence variables were parents and family and university education. The most important future influence variables were parents and family, university education, and networking. The most important educational mentoring influences were parents and family, university major department faculty, university faculty adviser, and peer groups. Educational networking factors of importance were peer groups, parents and family, internships, and university major department faculty. The most important employment mentoring influences were the immediate supervisor, parents and family, executive (higher than immediate supervisor), and co-workers. Employment networking variables, in order of importance, were parents and family, executive (higher than immediate supervisor), co-workers, friends in other work organizations, and previous employer. For business education respondents, mentoring remained constant in importance while networking increased in importance. Business education graduates utilized the university placement office significantly more than other school of business graduates.

Introduction

Graduates during the past years have tried many innovative strategies to gain and maintain employment. Alternatives for enhancing employment opportunities have been publicized by many diverse organizations. Business education graduates have seen an increased emphasis on initial and continuing employment designs. Networking and mentoring were two of the many strategies, which seemed to aid graduates with pursuing employment opportunities and aspirations.

Review of Literature

Networking

The literature suggests that networking has remained a key factor in the development of initial employment opportunities and for developing additional employment either for advancement or because of job displacement. Popular literature as diverse as *Working Woman* (Barbieri 1993), and *The Rotarian* (Flores 1993) have extolled the virtues of networking to gain employment and advancement. Professional organizations for many student and career professionals have devoted space in their publications to the advantages offered by a networking system.

Networking is the systematic process of developing helpful contacts, linking people for assisting, supporting, and helping each other find needed resources, information, job leads, opportunities, and feedback. It reduces isolation and builds participation and self-confidence. To construct a successful network, one starts with highly professional job performance. In addition, the networker watches for chances to help others, keeping in mind that the greater strength of networking is in mutual support, not paybacks (Gillis 1980).

An informal organization consists of networks of relationships that employees form across functions and divisions to accomplish tasks quickly (Krackhardt and Hanson 1993). Stockpiling contacts for job changes is the least important aspect of career networking. Recently it has become common for executives to have four or more employment changes in their careers. The rekindling of networking relationships and input of information into a computerized contact management system can be the most important aspect of career management (Olson 1994). Those who work at home must try a little harder to establish an outside network, both for business reasons and for their own psychological health (Smith 1993).

Mentoring

Another development in the employment arena has been the movement of mentoring from the educational establishment into business employment. Many authors have developed a list of roles for which a mentor is a key component (Kram 1983; Roche 1979, Moore and Amey 1988, Olian, Carroll, Giannantonia, and Feren 1988; Speizer 1981; Levinson, Carrow, Klein, Levinson, McKee 1978). A limited list includes: a positive role model, opener of doors, teacher, adviser, sponsor, guide, successful leader, consultant, developer of talent, and one who encourages. Collins (1983) lists five major criteria that may be utilized to define mentorship. The person must be (1) higher up on the organizational ladder than the person being mentored, (2) an authority in the field, (3) influential, (4) interested in the growth and development of the person being mentored, and (5) willing to commit time and emotion to the relationship.

Some research is concerned with both characteristics of individuals and interactions between mentors and proteges (Noe 1988; Olian, Giannantonia, and Feren 1988). Kram (1983) differentiated between career and psychosocial mentoring in a study of both proteges and mentors in a large business organization. Noe (1988), in an educational analysis of teachers and administrators, developed both a career function and a psychosocial function. An analysis of college students indicated both a vocational and a psychosocial function (Schockett and Haring-Hidore 1985).

Some research has indicated that female mentors have not had male proteges. Some suggest that men do not perceive women to be influential for careers (Erkut and Mokros 1981), while others suggest that women actively recruit proteges (Kanter 1977). However, a recent study suggests that there are no differences between men and women in attempts to initiate mentoring relationships and in mentoring received (Turban and Dougherty 1994).

A survey of business school graduates found that those with greater mentoring relationships had more promotions, higher income, and satisfaction than those with less extensive mentoring relationships (Dreher and Ash 1990). Whitely, Dougherty, and Dreher (1991) reported mentoring to be significantly related to compensation and promotions. The match between prospective mentors and proteges is key in some research studies. Chao, Walz, and Gardner (1992) found that informal mentoring relationships that were developed were significantly more productive than formal mentors. Hill, Bahniuk, Dobos, and Rouner (1989) found that the mentor/protege factor was similar to the one-way, complementary, parent-child relationships of most previous mentoring studies.

The summary of the diverse functions of mentoring develops three components of mentoring relationship: (1) direct career and professional development, (2) role modeling, and (3) emotional and psychological support (Jacobi 1991).

Purpose

The purpose of this study was to compare business education graduates to all other business graduates of a regional university in the Southwest. The comparative analysis included demographic information comparisons and statistical analysis of data on educational and employment mentoring and networking.

Population and Respondents

The population consisted of school of business graduates from the major areas of accounting, business administration, finance, economics, information processing systems, management, marketing, and office administration. Business education graduates were compared to the above majors. Listings of business graduates from 1954-1993 who met this criterion were compiled.

A list of 711 business graduate addresses was collected from the University Foundation and Alumni Associations. After eliminating two duplicates and determining 132 incorrect addresses, 577 business graduates received the initial questionnaire. One follow-up letter and questionnaire was sent. The total number of respondents from this group was 234 (40.6 percent).

An additional 1802 names were identified from an alumni directory developed for the University by an outside consulting firm in 1993. Nine individuals were eliminated from this list because they reported not being business graduates while undeliverable questionnaires indicated 563 incorrect addresses. Of the remaining 1229 graduates, 314 (25.5 percent) returned questionnaires after two mailings of a cover letter and questionnaire.

A total of 548 (30.3 percent) usable questionnaires were returned. Data indicated that business education respondents totaled 77 and all other business respondents totaled 471.

Comparison Groups

A Chi-square analysis was made between the sources of addresses from alumni groups and the address base supplied by the consulting group. The design of the study was to include potential respondents that would be representative of graduates for the period 1954-1993. Respondents from each group were compared by past and future influence and educational and employment mentoring and networking variables. None of the differences in source groups variables were significant at the $p<.01$ level. Future mentoring and networking approached the $p<.01$ level as might be expected because of the characteristic of respondents who joined the alumni associations as opposed to graduates who did not.

Methodology

A questionnaire was developed that included a series of statements to be ranked on a Likert-type scale. Prospective respondents were to indicate their responses about the importance of past and future aspirations variables. The variables were also compared for mentoring and networking for both educational and employment conditions. In addition, potential respondents were asked selected demographic data.

The initial questionnaire was subjected to a pilot test of 22 School of Business Alumni. Revisions were made on the basis of the comments received from this pilot group.

Demographic Information

The responses received from each survey group of the respondents were similar in demographic characteristics to the total school of business student body for the years surveyed. All demographic comparative characteristics and data are shown in Appendix I.

Business education respondents were predominately female (80.5 percent), while all other business respondents were 42.0 percent female. A Chi-square analysis indicated significant differences (p<.01) for the variable of gender when business education graduates' responses were compared to all other business respondents. The most frequent age category among respondents was 25 to 34 (44.2 percent for business education respondents and 46.7 percent for all other business respondents). The most frequent overall grade point average for both groups was 3.1 to 3.5 (45.5 percent for business education and 38.9 percent for all other business respondents). A Chi-square analysis indicated significant differences (p<.01) for the variable of overall grade point average. The reason for this difference was that 84.5 percent of the business education respondents had an overall grade point average above 3.0. The majority of both groups (100 percent business education and 95.3 percent for all other business respondents) were Caucasian.

The level of financial support for the respondents' contribution toward their college education was approximately 100 percent for 28.6 percent of business education respondents and 33.1 percent for all other business respondents. Some respondents reported earning less than one-half of their college expenses (26.0 percent for business education and 21.0 percent for all other business respondents).

A salary between 15,001 and 30,000 dollars was earned by 45.5 percent of business education respondents and 32.7 percent for all other business respondents. Over 75,000 dollars were earned by 3.9 percent and 11.9 percent of the respective respondent groups. Business education respondents who earned less than 45,000 dollars were equal to 83.2 percent.

Business education respondents depended on major department faculty (55.8 percent) and themselves (26.0 percent) for degree program advisement. The percentages for all other business respondents were 45.2 percent and 34.0 percent, respectively. Business education respondents were just as likely to be a former member of a business student organization as all other business respondents.

Graduation years between 1980-1989 were greater for business education respondents (40.3 percent) than all other business graduates (39.7 percent). More business education respondents (16.9 percent) graduated before 1970 than all other business respondents (7.9 percent). Membership in school or university alumni groups revealed small differences in the two groups (48.1 percent versus 41.8 percent). Business education respondents had slightly higher current and future aspirations.

The first employment for business education respondents was in education (57.1 percent) and administrative systems (16.9 percent). The first job for all other business respondents was in accounting/tax (28.5 percent), management (22.1 percent), and marketing (12.1 percent). The present occupation for business education respondents was education (50.6 percent), management (7.8 percent). The current occupation for all other business respondents was management (26.8 percent), accounting/tax (21.4 percent), and other (11.9 percent).

Influence Variables

Influence variable Chi-square values for past and future influences were computed for the 548 respondents. As presented in Table 1, the Chi-square analysis indicated significant differences (p<.05) in the computed value for past influences for university major department faculty and university placement office. Chi-square analysis also indicated significant differences (p<.05) in the computed value for future influence for the university placement office, professional organizations, information highway, and religion.

The past influence variables were ranked as presented in Table 2. When past influence variables were ranked for business education respondents, parents and family (31.2 percent) were ranked most important followed by university education (24.7 percent). The past influences ranked most important by all other business respondents were: parents and family (30.4 percent), university education (24.6 percent), and employer (10.4 percent).

Future influence variables were ranked as presented in Table 3. When influence variables were ranked for business education respondents, the most important variables were parents and family (31.2 percent), university education (16.9 percent), and networking (15.6 percent). For business education respondents, mentoring (3.9 percent) remained constant in importance while networking (15.6 percent) increased in importance. Future influence variables ranked most important for all other business respondents were networking (22.3 percent), parents and family (21.2 percent), employer (18.7 percent), and university education (11.0 percent).

Educational Influence

Educational influence Chi-square statistical analysis for mentoring and networking is presented in Table 4. The Chi-square analysis for educational mentoring indicated significant differences (p<.05) for the variable of internships when the two groups' responses were compared. The Chi-square analysis for educational networking indicated no significant differences (p<.05) for the variables when the two groups' responses were compared.

Table 1
Influence Variables for Business Education Graduates Compared to All Other Business Graduates (n=548)

VARIABLE	Influence Past Chi-Square Value	df	Signif.	Influence Future Chi-Square Value	df	Signif.
University Major Department Faculty	15.17	5	.010*	2.70	5	.746
Peer Groups	2.91	5	.713	5.38	5	.372
University Faculty Adviser	3.46	5	.629	6.89	5	.229
Employer	3.61	5	.607	5.95	5	.311
Parents and Family	4.85	5	.434	4.11	5	.533
Religion	10.20	5	.070	11.99	5	.035*
University Education	4.70	5	.454	4.42	5	.490
Student Organizations	1.88	5	.865	2.90	5	.715
Mentoring	3.14	5	.679	3.46	5	.630
Networking	7.49	5	.187	9.10	5	.105
Student Organization Adviser(s)	4.20	5	.521	6.54	5	.257
University Placement Office	45.14	5	.000*	33.94	5	.000*
Co-workers	5.62	5	.345	3.59	5	.610
University Alumni	6.20	5	.287	5.14	5	.399
Information Highway	4.29	5	.508	15.68	5	.008*
Professional Organizations	2.42	5	.789	5.31	5	.379

*p< .05

Table 2
Most Important Past Influence Variables Ranked for Business Education Graduates Compared to All Other Business Graduates (n=548)

VARIABLE	Past Rank Business Education	Past Percent Business Education	Past Rank All Other Business	Past Percent All Other Business
Parents and Family	1	31.2	1	30.4
University Education	2	24.7	2	24.6
University Major Department Faculty	3	7.8	5	4.7
Religion	5	5.2	6	4.2
Employer	5	5.2	3	10.4
University Faculty Adviser	5	5.2	7	4.0
University Placement Office	7.5	3.9	12	.6
Mentoring	7.5	3.9	8	3.8
Networking	9.5	2.6	4	7.9
University Alumni	9.5	2.6		
Peer Groups	11.5	1.3	9	3.6
Student Organizations	11.5	1.3	11	1.1
Professional Organizations			14	.4
Information Highway			14	.4
Student Organization Adviser(s)			14	.4
Co-workers			10	1.9
No Response		5.2		1.5

Table 3

Most Important Future Influence Variables Ranked for Business Education Graduates Compared to All Other Business Graduates (n=548)

VARIABLE	Future Rank Business Education	Future Percent Business Education	Future Rank All Other Business	Future Percent All Other Business
Parents and Family	1	31.2	2	21.2
University Education	2	16.9	4	11.0
Networking	3	15.6	1	22.3
Employer	4	7.8	3	18.7
Religion	5.5	5.2	5	7.6
Information Highway	5.5	5.2	7.5	2.8
University Placement Office	7.5	3.9	11.5	1.3
Mentoring	7.5	3.9	7.5	2.8
Professional Organizations	10	1.3	6	3.0
University Faculty Adviser	10	1.3	13	0.8
University Alumni	10	1.3	15	0.2
Co-workers			9	2.3
University Major Department Faculty			11.5	1.3
Student Organization Adviser(s)			15	0.2
Peer Groups			10	1.7
Student Organizations			15	0.2
No Response		6.5		2.5

Table 4

Educational Mentoring and Networking Influence Variables for Business Education Graduates Compared to All Other Business Graduates (n=548)

VARIABLE	Educational Mentoring Chi-Square Value	df	Signif.	Educational Networking Chi-Square Value	df	Signif.
Peer Groups	2.81	5	.730	9.18	5	.102
Parents and Family	5.37	5	.372	9.04	5	.107
University Faculty (non-major)	4.90	5	.428	6.33	5	.275
University Administration	10.90	5	.053	9.70	5	.084
Student Organization Adviser(s)	2.91	5	.714	4.08	5	.539
University Faculty Adviser	4.64	5	.461	5.80	5	.326
University Major Department Faculty	10.78	5	.056	7.65	5	.177
Internships	21.02	5	.001*	7.96	5	.159

*p< .05

Educational mentoring influences were ranked as presented in Table 5.

When educational mentoring influences were ranked for business education respondents, the variable parents and family (23.4 percent) was the most important educational mentoring variable followed by university major department faculty (16.9 percent), university faculty adviser (15.6 percent), and peer groups (10.4 percent). When educational mentoring influences were ranked for all other business respondents, the most important educational mentoring variable was also parents and family (39.1 percent). Other variables, ranked in importance were peer groups (14.6 percent) and university major department faculty (13.6 percent).

Educational networking influences are indicated in Table 6. The most important educational networking influences for business education respondents were peer groups (26.0 percent), parents and family (24.7 percent), internships (11.7 percent), and university major department faculty (10.4 percent).

Table 5
Most Important Educational Mentoring Influences Ranked for Business Education Graduates Compared to All Other Business Graduates (n=548)

VARIABLE	Educational Mentoring Business Education Rank	Educational Mentoring Business Education Percent	Educational Mentoring All Other Business Rank	Educational Mentoring All Other Business Percent
Parents and Family	1	23.4	1	39.1
University Major Department Faculty	2	16.9	3	13.6
University Faculty Adviser	3	15.6	4	9.6
Peer Groups	4	10.4	2	14.6
Internships	5	7.8	6	4.9
University Administration	6.5	6.5	8	3.8
University Faculty (non-major)	6.5	6.5	5	5.5
Student Organization Adviser(s)	8	5.2	7	4.7
No Response		7.8		4.2

Table 6
Most Important Educational Networking Influences Ranked for Business Education Graduates Compared to All Other Business Graduates (n=548)

VARIABLE	Educational Networking Business Education Rank	Educational Networking Business Education Percent	Educational Networking All Other Business Rank	Educational Networking All Other Business Percent
Peer Groups	1	26.0	1	35.9
Parents and Family	2	24.7	2	26.8
Internships	3	11.7	4	6.4
University Major Department Faculty	4	10.4	3	8.3
University Administration	5.5	6.5	7	4.0
University Faculty Adviser	5.5	6.5	6	4.5
University Faculty (non-major)	7	2.6	5	4.9
Student Organizations	8	1.3	8	3.2
No Response		10.4		6.2

All other business respondents indicated the most important educational networking variables were peer groups (35.9 percent) and parents and family (27.1 percent).

Employment Influences

Employment influence Chi-square statistical analysis for mentoring and networking is presented in Table 7. The Chi-square analysis for employment mentoring indicated significant differences ($p<.05$) for the variable of university placement office when business education responses were compared to all other business responses. The Chi-square analysis for employment networking indicated significant differences ($p<.05$) for the variables of parents and family and university placement office when responses for the two groups were compared.

As presented in Table 8, for business education respondents, immediate supervisor (25.4 percent) was the most important employment mentoring influence variable followed by parents and family (22.5 percent). The third most important employment mentoring influence variables were executive (higher than immediate supervisor) (11.3 percent) and co-workers (11.3 percent).

For all other business respondents, the immediate supervisor (21.9 percent) was the most important employment mentoring influence variable followed by executive (higher than immediate supervisor) (21.4 percent). The third most important employment mentoring influence variable was parents and family (19.4 percent).

As presented in Table 9, for business education respondents, the most important employment networking influence variables were parents and family and executive (higher than immediate supervisor) both with 12.9 percent; co-workers ranked third (11.4 percent). Ranked fourth was friends in other work organizations and previous employer both with 10.0 percent). For all other business respondents, friends in other work organizations (18.2 percent) was the most important employment networking influence variable. Next in importance were executive (higher than immediate supervisor) (14.3 percent), parents and family (10.8 percent), professional organizations (10.6 percent), and immediate supervisor (10.1 percent).

Table 7
Most Important Employment Mentoring and Networking Variables for Business Education Graduates Compared to All Other Business Graduates (n=548)

VARIABLE	Employment Mentoring Chi-Square Value	df	Signif.	Employment Networking Chi-Square Value	df	Signif.
Immediate Supervisor	5.74	6	.333	4.05	5	.542
Executive (Higher Than Immediate Supervisor)	6.66	6	.247	6.48	5	.261
Co-workers	10.66	5	.058	9.31	5	.097
Friends In Other Work Organizations	2.17	5	.826	3.31	5	.652
Professional Organizations	1.50	5	.913	5.93	5	.312
Parents and Family	.83	5	.975	16.40	5	.006*
Previous Employer	1.90	5	.863	8.35	5	.138
University Alumni	3.52	5	.620	7.29	5	.200
University Placement Office	45.32	5	.000*	54.21	5	.000*
Friends	3.92	5	.560	4.42	5	489
Information Highway	6.00	5	306	10.10	5	.072

*$p<.05$

Table 8

Most Important Employment Mentoring Variables Ranked for Business Education Graduates Compared to All Other Business Graduates (n=548)

VARIABLE	Employment Mentoring Business Education Rank	Employment Mentoring Business Education Percent	Employment Mentoring All Other Business Rank	Employment Mentoring All Other Business Percent
Immediate Supervisor	1	25.4	1	21.9
Parents and Family	2	22.5	3	19.4
Executive (Higher Than Immediate Supervisor)	3.5	11.3	2	21.4
Co-workers	3.5	11.3	5	7.6
Friends	6	7.0	4	9.0
Friends In Other Work Organizations	5	8.5	8	4.6
Professional Organizations	8	4.2	7	6.0
Previous Employer	8	4.2	6	7.1
University Placement Office	8	4.2	9.5	1.2
Information Highway	10	1.4	9.5	1.2
University Alumni			11	0.7
No Response		8.8		7.9

Table 9

Most Important Educational Networking Variables Ranked for Business Education Systems Graduates Compared to All Other Business Graduates (n=548)

VARIABLE	Educational Networking Business Education Rank	Educational Networking Business Education Percent	Educational Networking All Other Business Rank	Educational Networking All Other Business Percent
Parents and Family	1.5	12.9	3	10.8
Executive (Higher Than Immediate Supervisor)	1.5	12.9	2	14.3
Co-workers	3	11.4	6	9.0
Friends In Other Work Organizations	4.5	10.0	1	18.2
Previous Employer	4.5	10.0	7	6.4
Immediate Supervisor	6	8.6	5	10.1
Friends	7	8.5	8	4.6
University Placement Office	8	4.2	10.5	1.2
Professional Organizations	9	2.9	4	10.6
Information Highway	10.5	1.4	10.5	1.2
University Alumni	10.5	1.4	9	1.6
No Response		9.1		7.9

Summary and Conclusions

The following is based upon the findings of this study for business education respondents:

1. Business education respondents indicated that the most important past influence variables were parents and family and university education. The most important future influence variables were parents and family, university education, and networking.
2. The most important educational mentoring influences were parents and family, university major department faculty, university faculty adviser, and peer groups. Educational networking factors of importance were peer groups, parents and family, internships, and university major department faculty.
3. The most important employment mentoring influences were the immediate supervisor, parents and family, executive (higher than immediate supervisor), and co-workers. Employment networking variables, in order of importance, were parents and family, executive (higher than immediate supervisor), co-workers, friends in other work organizations, and previous employer.
4. For business education respondents, mentoring remained constant in importance while networking increased in importance.
5. Business education graduates utilized the university placement office significantly more than other school of business graduates.

Implications

As a result of these research findings, the following implications were indicated:

1. In this study, the variable parents and family had both a mentoring and networking impact upon the educational and employment track that respondents tended to follow. As an influence, the relative importance of this variable appeared to be crucial in its impact upon the study.
2. Professional organizations were not important to business education respondents of all age groups. This may explain, in part, the membership difficulty of national education organizations.
3. Expansion of networking sources appears to be essential to the respondents for future aspirations.
4. The information super highway appears to be a variable that should be the focus of future networking studies.
5. As noted by Jacobi (1991), many of the problems of mentoring research are the low levels of external validity when generalizing the findings to other students and institutions. This study appears to support the findings of previous studies in the identification of significant variables.

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APPENDIX I

DEMOGRAPHIC CHARACTERISTICS OF BUSINESS EDUCATION GRADUATES COMPARED TO ALL OTHER BUSINESS GRADUATES

CHARACTERISTICS	PERCENTAGE BUSINESS EDUCATION	PERCENTAGE ALL OTHER BUSINESS
Gender		
Male	19.5	57.9
Female	80.5	42.0
Total	77	471
Age		
Under 25	3.9	7.9
25-34	44.2	46.7
35-44	26.0	29.3
45-54	16.9	12.7
Over 54	9.1	2.5
No Response	0.0	0.8
Total	77	471
Overall Grade Point Average		
2.0-2.5	1.3	10.6
2.6-3.0	14.3	30.8
3.1-3.5	45.5	38.9
3.6-4.0	39	18.0
No Response	0	1.7
Total	77	471
Racial/Ethnic Group		
White/Caucasian	100.0	95.3
African American/Black	0	0.6
American Indian	0	2.1
Asian American/Asian	0	0.4
Puerto Rican American	0	0.2
Other	0	0.0
No Response	0	0.8
Total	77	430
Financial Support You Contributed Toward College Education		
None	10.4	10.0
Less Than One-Half	26.0	21.0
One-Half	9.1	11.0
Over One-Half	26.0	23.6
Approximately 100 Percent	28.6	33.1
No Response	0	1.3
Total	77	471

CHARACTERISTICS	PERCENTAGE BUSINESS EDUCATION	PERCENTAGE ALL OTHER BUSINESS
Current Annual Salary		
Under $15,000	14.3	10.6
$15,001-$30,000	45.5	32.7
$30,001-$45,000	23.4	25.3
$45,001-$60,000	9.1	11.3
$60,001-$75,000	1.3	5.7
$75,001 or Over	3.9	11.9
No Response	2.6	2.5
Total	77	471
Degree Program Advisement		
Friends	7.8	10.6
Major Department Faculty Member	55.8	45.2
Non-Major Faculty	7.8	5.5
Student Organization Adviser	0	0.8
Yourself	26.0	34.0
Other	2.6	2.1
No Response	0	1.7
Total	77	471
Member Of Business Student Organization		
Yes	50.6	51.8
No	48.1	47.1
No Response	1.3	1.1
Total	77	471
Business Student Organizations		
Accounting Club	0	13.0
Phi Beta Lambda	18.2	10.8
Management/Marketing Club	1.3	4.0
Alpha Kappa Psi	0	3.0
OA/BE Professionals	5.2	0
PBL Plus Other Bus. Student Organization	9.1	10.6
No Response	66.2	58.6
Total	77	471
Graduation		
Before 1970	16.9	7.9
1970-1979	20.8	24.2
1980-1989	40.3	39.7
1990-1993	22.1	28.2
Total	77	471
University or School Alumni Membership		
Member	48.1	41.8
Not a Member	51.9	58.2
Total	77	471
Current Employment Aspirations (Ranked 1-5 with 5 high)		
Rank 1	6.6	6.4
Rank 2	9.2	14.8
Rank 3	22.4	29.8
Rank 4	31.6	32.5
Rank 5	30.3	16.5
Total	76	467
Future Employment Aspirations (Ranked 1-5 with 5 high)		
Rank 1	2.7	2.2
Rank 2	2.7	2.4
Rank 3	9.6	14.6
Rank 4	35.6	36.3
Rank 5	49.3	44.6
Total	73	460

A Comparative Study of Communication Systems Used in U.S. Corporate and Public Organizations

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Abstract

This study investigates the communication systems used in U.S. corporate and public organizations, user preference, and their impact on productivity. Data were collected from 182 companies of different sizes in a wide range of industries and 132 public organizations of comparable sizes in higher education, law enforcement, state and local governments. The findings indicate that although corporate and public organizations use similar communication systems, significant differences exist between them in their use of fax, paper mail/letters, and paper memos/reports. E-mail is perceived to have the greatest positive impact on productivity, and telephone/pager/voice mail is the most-preferred communication system.

Introduction

Business and managerial communication is recognized as an essential part of the organizational structure in all types of organizations. The critical value of communication to organizational effectiveness means that communication systems and processes are becoming increasingly important. More and more companies and public institutions have been restructuring their organizations and integrating computers, networks, groupware, and e-mail into their most basic processes to enhance productivity and competitiveness. According to Forrester Research, 50% of all large U.S. companies have been either evaluating or planning intranets (Simons, 1996).

There is also an increasing use of communication technology in the small business sector. Small businesses discover that e-mail can improve customer service, interoffice collaboration, and productivity (McCollum, 1996). McCollum's (1997) found that over 45% of the small companies he surveyed use the Internet, an increase from 19% just 10 months earlier. Increasingly, companies acquire more communication technology as they learn that their customers and business partners, as well as their competitors, are on the Net.

Similarly, government and public organizations use computer networks for increasing efficiency and decreasing cost. U.S. Senate, for example, saved more than $231,000 by using network computing and communication in 1997 ("U.S. Senate," 1997).

As corporate and public organizations radically change the way they communicate, the impact of such changes on productivity, user preference, and communication-technology training may be significant. Therefore, business and managerial communication educators need to know what communication systems are used in U.S. companies and public organizations, how similarly or differently the systems are used between the two sectors, and how the systems affect organizational and personal productivity and user preference. With such knowledge, educators are able to teach students relevant knowledge and skills.

Problem Statement

The primary problem addressed in this study was to investigate the communication systems used in U.S. corporate and public organizations, user preference, and their impact on productivity. The secondary problem was to test the validity of the media-richness and media-choice theory developed by Daft and Lengel (1986) and Trevino, Lengel and Daft (1987). To address these problems, the following six research questions were developed:

1. What communication systems do U.S. companies and public organizations use for business operations?
2. How are communication systems used in U.S. companies and public organizations to perform various activities?
3. What are the perceived effects of communication systems on organizational and personal productivity?
4. What communication systems are more or less preferred by users?
5. Do differences exist between U.S. companies and public organizations in their use of communication systems?
6. Do the findings of this study support the media-richness and media-choice theory?

Purpose of the Study

The purpose of the study is threefold: (a) to provide communication educators with the findings that will help them keep their curricula current, (b) to provide the participating organizations with feedback on what and how communication systems are used in other organizations, and (c) to advance knowledge about the media-richness and media-choice theory.

Review of Related Literature

To clarify the research problems addressed in this study, a review of related literature was conducted in these three areas: (a) communication systems used in organizations, (b) communication systems and productivity, and (c) the media richness and media choice theory.

Communication Systems Used in Organizations

Rubach and Stratton (1995) interviewed a group of Malcolm Baldrige National Quality Award-winning companies, including: AT&T Universal Card Services, GTE Directories Corp., IMB Rochester, Motorola Inc., Ritz-Carlton Hotel Co., Texas Instruments Inc., Defense Systems and Electronics Group, Xerox Corp, Business Products and Systems, and Zytec Corp, to identify effective organizational communication practice. They found several similarities in the communication systems that these organizations established to meet their needs. To support effective and efficient organizational communication, the organizations use face-to-face meetings, e-mail, fax, telephone, pager, voice mail, video-conference, paper newsletters, memos and reports. Rubach and Stratton noted that the communication systems in these award-winning organizations provide employees with the information they need to do a good job, and these organizations focused not only on sending the information but also on making sure the information is sent the most effective way.

As Internet/Web-based communication and collaboration have become a user-friendly and powerful communication system, employees can use Web-equipped computers to access information, send e-mail, or collaborate on documents and other projects (Andreessen, 1996; Simons, 1996; Wyatt, 1995).

Sentry Market Research's 1996 survey (Grygo, 1996) reported that one-third of U.S. businesses have internal Web servers but with only modest intranet development activity, because users need time to adjust to the unexpected cultural shock waves caused by intranets. Row (1997) found that most of the companies having large-scale intranets are in technology industries. Large-scale intranets are used for such activities as having online discussions, holding video conference, sharing databases and applications software, communicating and collaborating on documents and projects, developing corporate knowledge repository, publishing Web-newsletters, and sending e-mail.

The literature reveals radical changes from paper-based to computer-based organizational communication systems; however, no study has been found to examine how specific communication systems are used in U.S. corporate and public organizations and what similarities and differences exist between these two sectors. Thus, these questions are addressed in this study.

Communication Systems and Productivity

Bordia (1997) conducted a meta-analysis of 18 experimental studies completed in school settings between 1985 and 1994 regarding the impact of computer technology on human communication. The meta-analysis found that, when compared to face-to-face communication (FTF) groups, computer-mediated communication (CMC) groups took more time to complete a required task and produced fewer remarks in the allotted time. CMC groups, however, performed better than FTF groups in generating ideas and in increasing productivity, when groups are larger. Further, when there is limited time, CMC groups performed better than FTF groups on tasks with less social-emotional interaction; but CMC groups performed worse on tasks with more social-emotional interaction. Over longer period of time, CMC groups performed as well as FTF groups did.

Several other studies also investigated the relationship between communication and productivity. Gregson's (1987) survey of certified public accountants reported that employee turnover was linked to communication satisfaction. Studies conducted by Tubbs and Widgery (1978) and Tavernier (1980) showed positive effects of communication training programs on organizational effectiveness. Clampitt and Downs'(1993) field study of two corporate organizations reported that communication was perceived to have positive impact on productivity, which varied in both kind and magnitude. Good and Stone's (1995) study of technology's impact on organizational communication and productivity in a marketing organization found a dual integrative role of computer technology in communication and productivity. In an operational sense, computers improve operations through improving communication and the productivity of work. In a strategic sense, these successful systems indirectly affect marketing strategy by helping managers make better decisions, and thereby, aiding strategic activities.

In a *Fortune* special report, Magnet (1994) stated that efforts to reorganize companies around computers, faxes, networks, and other infotech tools have demonstrated positive effect on business productivity. Teitelbaum (1995, 1996) also reported that computers have increased the efficiency of back-office jobs, cutting expenses and increasing profits. By one estimate, technology is responsible for over half of all productivity gains of the *Fortune* 500 companies.

These studies have shown the evidence of general links between communication and productivity from one level, one function, or one or two organizations. But no study has been identified to investigate how users in different organizational functions perceive the relative impact of each communication system on their organizational and personal productivity and what preferences they have when choosing communication systems. Therefore, these questions are also addressed in this study.

Media Richness and Media Choice Theory

Daft and Lengel, and Trevino (1986, 1987, 1988) found that communication systems vary in their abilities to (a) handle multiple information cues simultaneously, (b) facilitate rapid feedback, and (c) establish personal focus. Based on their studies, the researchers theorized that face-to-face communication is the richest medium, followed by telephone, e-mail, personal written documents such as letters, notes and memos, and impersonal written documents such as fliers, bulletins and reports. They found face-to-face communication to be more appropriate for highly ambiguous tasks such as negotiation and conflict resolution as it gives immediate feedback, multiple cues, and personal focus. On the other hand, telephone and e-mail are not as rich as face-to-face because they do not show eye contact and other body language cues. As such, they are suitable for less ambiguous, routine information exchange. Written media are the lowest on the media-richness hierarchy because of their limited cues and slow feedback; therefore, they are most suitable for unambiguous, routine communications.

However, managers'media choices are not only influenced by media richness but also by other factors such as distance, time pressure, accessibility, authority, legitimacy, and formality. The symbolism of a formal written report, for example, may serve to increase its appropriateness in certain situations in which the user wants to convey an impression of authority (Trevino, Lengel & Daft, 1987).

To test the validity of a theory, empirical data are required (Frey, Botan, & Kreps, 1991). This study will provide empirical results for testing the validity of the media-richness and media-choice theory.

Methodology

A survey was conducted among two sample groups. The population of the first sample group consisted of the first 1,000 companies listed by size in a business directory of a Midwestern state. These companies range from the *Fortune 500* corporations to small companies with less than 200 employees in various industries. The population of the second sample group consisted of 600 public sector organizations (excluding public schools) based on the American Business Information's database. To guarantee that the samples would be within 5% variation from the true population value, Jaeger's (1984) formula for determining sample size was used to obtain two random samples of 285 companies and 250 public organizations, respectively.

The researchers developed a questionnaire with four sections: (a) demographics of the responding organizations; (b) available communication systems; (c) business communication activities; and (d) productivity and user preference.

Based on the review of related literature, seven communication systems and ten types of business activities were included in the questionnaire. The seven communication systems were (a) e-mail, (b) face-to-face meetings, (c) fax, (d) groupware/intranet, (e) telephone/pager/voice mail, (f) paper mail/letters (including sales letters), and (g) paper memos/reports (including periodical reports and bulletins). An "other" category was provided to identify any other possible alternatives.

Ten types of business communication activities were (a) coordinating activities, (b) delivering documents, (c) giving assignments, (d) making announcements, (e) making group decisions including negotiating and resolving conflicts, (f) receiving assignments, (g) replying to questions, (h) requesting information, (i) scheduling meetings, and (j) publicizing new products and services. These types of activities were further divided into routine and special situations.

A five-point scale was provided for respondents to indicate the perceived impact of the communication systems on their organizational and personal productivity. Perceptions were used in the study because they reflect people's observations and recognitions of reality. As Watzlawick (1978), Werther, Ruch and McClure (1986) noted, people never deal with reality per se, but rather with perceptions of reality. Empirical studies on the reliability of human perception reported significant positive correlation between perception and reality (see, for example, Cournoyer & Rohner, 1996; Slutske & Heath, 1996).

Productivity has been operationally defined in a variety of ways, one of them is the speed of producing high-quality products or completing high-quality assignments (Schuler, Beutell & Youngblood, 1989; Werther, Ruch & McClure, 1986). This operational definition was adopted in the research. To identify the user preference of the communication systems, a question was provided for respondents to rank each system by user preference.

To determine clarity of the survey instrument, a pilot test was conducted with 20 randomly selected companies from the business directory of a Midwestern state. Upon the return of the questionnaires, no major changes were deemed necessary.

A computer-assisted random sampling procedure was used to identify the 285 companies and 250 public organizations with the CEOs' office phone and fax numbers from the electronic databases of a business directory of a Midwestern state and the American Business Information, respectively. The researchers and their trained assistants conducted the survey by using telephone, fax, e-mail, or paper mail, based on respondent preference. One hundred eighty-two companies cooperated and completed their questionnaires, which represents 64% of the sample. Of the 134 responses received from the public sector, 132 were usable—a 53% response rate. The response rates of 64% and 53% may affect the reliability of the study. However, the responding companies and public organizations represent six major industry groups and three main types of public institutions, respectively (see Tables 1 and 2).

Each completed questionnaire was coded. Frequency counts, percentage distributions, and weighted averages were prepared for data analysis. Follow-up crosstabulation analyses and Pearson Chi-square tests were used to determine significant differences between companies and public organizations in their use of communication systems.

Results

The results of the study are presented in the following sections: (a) demographics of the responding organizations, (b) communication systems, (c) communication activities, and (d) productivity and user preference. Significant differences between corporate and public sectors are reported in their respective sections.

Demographics

As shown in Table 1, the 182 respondents represent six major industry groups covering a wide range of businesses, with 31.3% in manufacturing and processing industries, 61.6% being small- and middle-sized companies, and 67% representing top- and middle-level managers.

Table 2 shows the profile of public organizations. Among them the majority were higher education institutions (54%) and small agencies under 200 employees (59.7%). The respondents had a variety of positions ranging from top managers to executive assistants.

Communication Systems

Research Questions #1 and #5 asked, "What communication systems do U.S. companies and public organizations use for business operations?" and "Do differences exist between U.S. companies and public organizations in their use of communication systems?" As Table 3 shows, more than 95% of the companies and public organizations were using five communication systems: face-to-face meetings, fax, paper mail and letters, telephone/pager/voice mail, and paper memos and reports for their business operations. By contrast, only 39% of the companies and 41.4% of the public institutions were using groupware and intranet. Significant difference was identified in using e-mail system between companies (67%) and public organizations (84%). Although only 67% of the companies reported using e-mail, the remaining companies reported that they were either in the process of installing e-mail system or were thinking about it.

Table 1
Demographic Profile of the Responding Private Companies (N = 182)

Characteristic	No. of Companies	Percent of Total
Group Type of Company Business		
1. Manufacturing/Processing Industries	57	31.3%
2. Banking/Finance/Insurance	35	19.2%
3. Retail/Wholesale	32	17.6%
4. Health Care Services	27	14.8%
5. Information/Communication Technology	17	9.3%
6. Construction, Engineering, Mining, Oil/Gas, Transportation/Utilities	14	7.7%
Total	182	100.0%
Number of Employees		
150 - 199	56	30.8%
200 - 399	56	30.8%
400 - 599	25	13.7%
600 - 799	17	9.3%
800 - 999	8	4.4%
1000 - up	20	11.0%
Total	182	100.0%
Respondents' Job Titles		
Managers (e.g., Com, HR, IT, Office)	79	43.4%
Executive Secretary/Assistant	43	23.6%
Top Managers (e.g., CEO, CFO, COO)	32	17.6%
Professionals (e.g., Accountant, Engineer, Sales & Service Sales and Service Specialists)	28	15.4%
Total	182	100.0%

Communication Activities

Research Question #2 asked, "How are communication systems used in U.S. companies and public organizations to perform various activities?" Tables 4-13 present findings of how different types of communication systems were selected for performing a variety of routine (e.g., familiar, non-persuasive, unambiguous) and special (e.g., novel, persuasive, complex) communication activities.

As shown in Table 4, when coordinating routine activities, more than 55% of the users in both corporate and public sectors selected phone/pager/voice mail, face-to-face meetings, e-mail, and paper memos/reports. Although fax was chosen by the minorities in companies (37%) and public organizations (20%) for cocoordinating routine activities, the difference between the two sectors was statistically significant. When coordinating special

Table 2
Demographic Profile of the Responding Public Organizations (N = 132)

Characteristic	No. of Organizations	Percent of Total
Types of Organizations		
Education	71	54.0%
State/Local Government	38	28.6%
Law Enforcement	15	11.4%
Other	8	6.0%
Total	132	100.0%
Sizes of Organizations		
Less than 10	2	1.5%
10-199	77	58.2%
200-399	21	16.0%
400-599	14	10.5%
600-799	8	6.0%
800-999	1	1.0%
1000 or more	9	6.8%
Total	132	100.0%
Respondents' Job Titles		
Manager/Director	44	33.4%
Supervisor	10	7.6%
President/Chancellor (Col/Univ.)	10	7.6%
Vice President/Chancellor/ Provost	9	6.8%
Project Coordinator	6	4.5%
Special Assist. to Pres./Chan.	6	4.5%
Chief Police/Fire/Sheriff	6	4.5%
Other	14	10.6%
No Response	27	20.5%
Total	132	100.0%

activities, three systems—phone/pager/ voice mail, paper memos/ reports, and paper mail/letters—were used by significantly more public organizations (78%, 67%, 54%) than companies (67%, 48%, 38%). On the contrary, fax was used by significantly more companies (31%) than public institutions (21%) for coordinating special communication activities.

For delivering routine documents, more than 50% of the users from both corporate and public sectors reported choosing fax, paper mail/letters, e-mail, and paper memos/reports (see Table 5). When delivering special documents, more than 50% of the users from both corporate and public sectors reported choosing fax, paper mail/letters, paper memos/reports, and face-to-face meetings. However, as fax was selected by significantly more companies for delivering routine documents, the traditional paper mail/letters and paper memos/reports were used by significantly more public organizations for both routine and special tasks.

Table 6 indicates that four systems (phone/pager/voice mail, face-to-face meetings, e-mail, and paper memos/reports) were selected by 40% to 75% of the users from both corporate and public sectors for giving routine and special assignments. Among these four systems, phone/pager/voice mail and paper memos/reports were chosen significantly more often by the public sector users than their counterparts when giving special assignments.

As Table 7 shows, when making routine and special announcements, more than 50% of the users in both sectors selected e-mail, phone/pager/voice mail, paper memos/reports, and face-to-face meetings. Public sector users chose the traditional paper memos/reports most frequently for making special announcements, whereas corporate users selected face-to-face meetings most frequently for the same task. Significant differences were identified that public sector users selected paper memos/ reports and paper mail/letters far more often than their counterparts for making special announcements.

Table 3
Communication Systems Used in Companies and Public Organizations

Systems	Companies (n=182) Percentage	Frequency	Public Orgs (n=132) Percentage	Frequency
Face-to-Face Meetings	99.5	181	100.0	132
Fax	99.5	181	99.2	131
Paper Mail/Letters	98.9	180	99.2	
Phone/Pager/Voice Mail	97.3	177	97.0	128
Paper Memos/Reports	95.6	174	99.2	131
E-mail	67.0	122	84.0	111**
Groupware/Intranet	39.0	71	41.4	55

Table 4

Communication Systems Used in Companies and Public Organizations for Coordinating Activities

	Coordinating Activities			
	Routine (%)		Special (%)	
Systems	Companies	Public Orgs	Companies	Public Orgs
Phone/Pager/Voice Mail	82	82	67	78*
Face-to-Face Meetings	76	84	73	78
E-mail	67	57	55	52
Paper Memos/Reports	58	69	48	67**
Groupware/Intranet	44	44	31	41
Paper Mail/Letters	43	56	38	54*
Fax	37	20**	31	21*

Note. * = Difference significant at the .01 level. ** = Difference significant at the .001 level.

Table 5

Communication Systems Used in Companies and Public Organizations for Delivering Documents

	Delivering Documents			
	Routine (%)		Special (%)	
Systems	Companies	Public Orgs	Companies	Public Orgs
Fax	83	65**	70	76
Paper Mail/Letters	60	77*	59	83**
E-mail	55	54	37	40
Paper Memos/Reports	53	67*	51	66*
Face-to-Face Meetings	52	49	57	55
Phone/Pager/Voice Mail	45	34	35	28
Groupware/Intranet	33	39	31	34

Note. * = Difference significant at the .01 level ** = Difference significant at the .001 level

Table 6

Communication Systems Used in Companies and Public Organizations for Giving Assignments

	Giving Assignments			
	Routine (%)		Special (%)	
Systems	Companies	Public Orgs	Companies	Public Orgs
Phone/Pager/Voice Mail	74	75	56	68*
Face-to-Face Meetings	62	69	65	75
E-mail	54	43	43	42
Paper Memos/Reports	53	60	40	68**
Paper Mail/Letters	29	40*	26	40*
Fax	28	16*	26	22
Groupware/Intranet	31	36	18	3**

Note. * = Difference significant at the .01 level ** = Difference significant at the .001 level

Table 7

Communication Systems Used in Companies and Public Organizations for Making Announcements

Systems	Making Announcements Routine (%) Companies	 Public Orgs	 Special (%) Companies	 Public Orgs
E-mail	64	52	49	51
Phone/Pager/Voice Mail	62	60	50	55
Paper Memos/Reports	60	69	51	76**
Face-to-Face Meetings	56	59	64	67
Paper Mail/Letters	42	58*	47	66**
Fax	39	29	37	39
Groupware/Intranet	26	36	26	41*

Note. * = Difference significant at the .01 level. ** = Difference significant at the .001 level.

Table 8

Communication Systems Used in Companies and Public Organizations for Making Group Decisions

Systems	Making Group Decisions Routine (%) Companies	 Public Orgs	 Special (%) Companies	 Public Orgs
Face-to-Face Meetings	66	72	66	72
Phone/Pager/Voice Mail	46	40	39	38
E-mail	33	29	22	23
Paper Memos/Reports	31	36	28	34
Paper Mail/Letters	24	27	21	28
Groupware/Intranet	23	19	27	17
Fax	18	7*	17	12

Note. * = Difference significant at the .01 level.

When making routine and special group decisions, the majority of the respondents from both corporate (66%) and public (72%) sectors chose face-to-face meetings as the most appropriate communication system. Far below it were phone/pager/voice mail, followed by e-mail and others (see Table 8).

For receiving routine assignments, 50% to 77% of the corporate respondents used four tools (phone/pager/voice mail, e-mail, face-to-face meetings, and fax), while 49% to 74% of the public sector users chose the same tools as well as paper mail/letters and paper memos/reports for the same task, which showed significant differences between the two sectors (see Table 9). For receiving special assignments, public organization users reported using paper mail/letters, paper memos/reports, and groupware/intranet significantly more often than those from companies did. By contrast, corporate users reported using phone/pager/voice mail significantly more often than their counterparts for the same task.

Table 10 indicates that when replying to routine and special questions, more than 50% of the respondents in companies and public organizations used a wide variety of communication systems. Among them, phone/pager/voice mail (87%, 89%) was rated at the top as the most frequently selected. Significant differences were identified between the two sectors in choosing paper mail/letters and paper memos/reports for replying to questions. Public organization users selected these two traditional systems significantly more often than by their counterpart.

When requesting routine and special information, phone/pager/voice mail was ranked by users in both sectors at the top as the most frequently selected, as shown in Table 11. Significant differences between the two sectors indicate that, while fax was used far more frequently by companies for requesting routine information, paper memos/reports, paper mail/letters, and e-mail were selected by public organizations far more often than their counterparts for requesting routine or special information.

Table 9

Communication Systems Used in Companies and Public Organizations for Receiving Assignments

	Receiving Assignments			
	Routine (%)		Special (%)	
Systems	Companies	Public Orgs	Companies	Public Orgs
Phone/Pager/Voice Mail	77	74	59	48*
E-mail	60	71	49	56
Face-to-Face Meetings	54	62	57	60
Fax	50	49	39	48
Paper Mail/Letters	46	60*	34	56**
Paper Memos/Reports	44	63**	37	66**
Groupware/Intranet	36	44	26	39*

Note. * = Difference significant at the .01 level. ** = Difference significant at the .001 level.

Table 10

Communication Systems Used in Companies and Public Organizations for Replying to Questions

	Replying to Questions			
	Routine (%)		Special (%)	
Systems	Companies	Public Orgs	Companies	Public Orgs
Phone/Pager/Voice Mail	87	89	72	70
E-mail	76	80	58	68
Fax	63	62	56	66
Paper Mail/Letters	60	81**	60	81**
Paper Memos/Reports	56	69*	45	69**
Face-to-Face Meetings	55	54	56	58
Groupware/Intranet	33	39	33	44

Note. * = Difference significant at the .01 level. ** = Difference significant at the .001 level.

Table 11

Communication Systems Used in Companies and Public Organizations for Requesting Information

	Requesting Information			
	Routine (%)		Special (%)	
Systems	Companies	Public Orgs	Companies	Public Orgs
Phone/Pager/Voice Mail	86	82	72	81
E-mail	70	64	52	66*
Fax	64	41**	59	55
Face-to-Face Meetings	58	57	56	63
Paper Memos/Reports	56	64	50	69**
Paper Mail/Letters	55	72*	57	78**
Groupware/Intranet	38	46	33	44

Note. * = Difference significant at the .01 level. ** = Difference significant at the .001 level.

As Table 12 illustrates, phone/pager/voice mail was selected by the majority of both corporate users (74%-63%) and public organization users (72%-69%) for scheduling routine and special meetings. Except for this similar choice, significant differences existed between the two groups in selecting other systems for scheduling meetings. While significantly more corporate users chose e-mail and fax for scheduling routine meetings, far more public organization users selected paper memos/reports, paper mail/letters, and groupware/intranet for scheduling routine and special meetings.

For publicizing new products and services, less than 50% of the respondents from both sectors reported choosing these systems (see Table 13). Significant differences were identified that far more corporate users selected paper mail/letters, groupware/intranet, and fax for accomplishing such activities.

As the summary means in Table 14 show, telephone/pager/voice mail and face-to-face meetings were rated by corporate users as being the most frequently selected communication systems, followed by e-mail, paper memos/reports, paper mail/letters, fax, groupware and intranet. In contrast, public sector users ranked paper memos/reports and face-to-face meetings as being most frequently chosen, followed by phone/pager/voice mail, paper mail/letters, e-mail, groupware/intranet, and fax.

Table 12
Communication Systems Used in Companies and Public Organizations for Scheduling Meetings

	Scheduling Meetings			
	Routine (%)		Special (%)	
Systems	Companies	Public Orgs	Companies	Public Orgs
Phone/Pager/Voice Mail	74	72	63	69
E-mail	63	51*	52	46
Paper Memos/Reports	57	70*	48	70**
Face-to-Face Meetings	54	49	51	49
Paper Mail/Letters	39	53*	36	54**
Fax	33	22*	29	29
Groupware/Intranet	28	46 *	21	44 **

Note. * = Difference significant at the .01 level. ** = Difference significant at the .001 level.

Table 13
Communication Systems Used in Companies and Public Organizations for Publicizing New Product/Service

	Publicizing New Product/Service	
Systems	Companies	Public Orgs
Face-to-Face Meetings	44	36
Paper Mail/Letters	44	31*
Groupware/Intranet	36	17**
E-mail	30	26
Phone/Pager/Voice Mail	27	20
Paper Memos/Reports	26	25
Fax	26	11 **

Note. * = Difference significant at the .01 level.
** = Difference significant at the .001 level.

Productivity and User Preference

Research Question #3 asked, "What are the perceived effects of communication systems on organizational and personal productivity?" As presented in Table 15, the respondents from both companies and public organizations perceived that e-mail, telephone/pager/voice mail, fax, face-to-face meetings, groupware and intranet helped increase their organizational and personal productivity, with e-mail taking the lead. By contrast, paper mail/letters, paper memos/reports received lowest scores of enhancing organizational and personal productivity. Moreover, the respondents from the corporate sector perceived significantly more positive impact of phone/pager/voice mail on their organizational and personal productivity than did their counterparts in the public sector. Corporate respondents also perceived significantly more positive impact of fax on their personal productivity than did those from the public sector.

Research Question #4 asked, "What communication systems are more or less preferred by users?" As Table 16 shows, when asked to rank the seven communication systems by user preference, the respondents of both sectors ranked phone/pager/voice mail at the top of the preference list, followed by face-to-face meetings, e-mail, fax, paper memos/reports, paper mail/letters, and groupware and intranet. Significant difference was identified between the two sectors with the corporate respondents preferring to use fax more than did those from the public sector.

Table 14

Summary of Communication Systems Used in Companies and Public Organizations for Performing Communication Activities

	Summary Means			
	Routine (%)		Special (%)	
Systems	Companies	Public Orgs	Companies	Public Orgs
Phone/Pager/Voice Mail	66	63	59	57
Face-to-Face Meetings	58	59	61	64
E-mail	58	50	46	48
Paper Memos/Reports	49	59*	44	65**
Paper Mail/Letters	44	55*	42	60**
Fax	44	32*	40	41
Groupware/Intranet	30	36	26	39*

Note. * = Difference significant at the .01 level ** = Difference significant at the .001 level

Table 15

Perceived Impact of Communication Systems on Organizational and Personal Productivity Between Companies and Public Organizations

	Org'l Productivity Weighted Average[a]		Personal Productivity Weighted Average[a]	
Systems	Companies	Public Orgs	Companies	Public Orgs
E-mail	4.4	4.3	4.4	4.4
Phone/Pager/Voice Mail	4.3	4.1*	4.3	4.0*
Fax	4.3	4.2	4.2	4.0*
Face-to-Face Meetings	4.0	3.9	3.8	3.9
Groupware/Intranet	3.9	3.9	3.8	3.7
Paper Mail/Letters	3.3	3.3	3.3	3.4
Paper Memos/Reports	3.3	3.4	3.3	3.4

Note. [a] Responses to a Likert-type scale where 5 = greatly increase productivity, 3 = no change and 1 = greatly decrease productivity. * = Difference significant at the .01 level ** = Difference significant at the .001 level

Table 16
User Preference of Communication Systems Between Companies and Public Organizations

	User Preference Weighted Average[a]	
Systems	Companies	Public Orgs
Phone/Pager/Voice Mail	2.3	2.5
Face-to-Face Meetings	2.6	2.6
E-mail	2.8	2.7
Fax	3.5	4.4**
Paper Memos/Reports	4.9	4.6
Paper Mail/Letters	4.9	4.7
Groupware/Intranet	5.3	5.0

Note. [a] Responses to a rank scale where 1 = most preferred, 7 = least preferred, 0 = not used.

Summary and Discussion

Nearly all the respondents from both corporate and public sectors reported using the following five communication systems for performing various business communication activities: face-to-face meetings, fax, paper mail and letters, telephone/pager/voice mail, and paper memos and reports. E-mail was available in 84% of the public organizations and 67% of the companies and would soon be available in the remaining ones. Groupware and intranet were available in 41% of the public organizations and 39% of the companies. These findings are consistent with the findings of the communication systems used in the eight Baldrige National Quality Award-winning companies (Rubach & Stratton, 1995). The finding also supports Grygo's (1996) survey results that about one-third of U.S. businesses have internal Web servers.

As the summary means in Table 14 show, telephone/pager/voice mail and face-to-face meetings were rated by corporate users as being the most frequently selected communication systems, followed by e-mail, paper memos/reports, paper mail/letters, fax, groupware and intranet. In contrast, public sector users ranked paper memos/reports and face-to-face meetings as being most frequently chosen, followed by phone/pager/voice mail, paper mail/letters, e-mail, groupware/intranet, and fax.

A great similarity between the two sectors was that users in both sectors selected face-to-face meetings as the most appropriate medium for making group decisions and performing special activities. These findings answered Research Question #6 about the media-richness and media-choice theory by supporting the theory that face-to-face communication is the richest medium and most appropriate for highly ambiguous tasks (Daft & Lengel, 1986; Trevino, Lengel & Daft, 1987).

Significant differences existed between the two sectors in using paper memos/reports, paper mail/letters, fax, and groupware/intranet. Whereas corporate users selected fax as the most appropriate tool for delivering routine and special documents, public sector users chose paper mail/letters most. Public sector users selected paper mail/letters and paper memos/reports significantly more often than corporate users for many routine and special activities because of their government requirements and bureaucratic tradition. These significant differences also answered Research Question #6 by showing that media choice is not only based on media richness but also constrained by other factors such as accessibility, formality, authority, and legitimacy (Daft & Lengel, 1986; Trevino, Lengel & Daft, 1987).

The respondents from both sectors perceived e-mail, phone/pager/voice mail, and fax as being ranked at the top of the communication systems in enhancing organizational and personal productivity. Face-to-face meetings, groupware and intranet were ranked in the middle, whereas paper mail/letters and paper memos/reports were ranked at the bottom for enhancing organizational and personal productivity. Many respondents also added that their companies could not exist in today's business world if they did not use e-mail, phone/pager/voice mail, and fax. These findings indicate the growing positive impact of computerized communication systems on productivity. The findings also show that the richest medium—face-to-face meetings—does not have the strongest positive impact on productivity. The findings are consistent with Bordia's (1997) meta-analysis results of 18 experimental studies. The meta-analysis found that computerized communication groups perform better than face-to-face communication groups in generating ideas and increasing productivity when groups are getting larger or when time is limited and less social-emotional interaction is required.

Furthermore, public sector users perceived that paper mail/letters and paper memos/reports have weak positive impact on productivity, although they used these tools heavily. This finding can be explained with the media-richness and media-choice theory that public sector's heavy use of paper mail/letters and paper memos/reports might be the choice constrained by its bureaucratic tradition or government policy, regardless of their impact on productivity. This finding suggests that the public organizations have the potential for further improvement in organizational communication practice.

Finally, a communication system's positive impact on productivity does not always mean that user prefers the system. For example, although e-mail was perceived as having the greatest positive impact on both organizational and personal productivity, it was ranked below phone/pager/voice mail and face-to-face meetings in preference by users in both sectors. Similarly, groupware and intranet were ranked as the least preferred systems, although they were ranked in the middle for their impact on productivity. This finding suggests the importance of communication technology training. If users were not well trained to use a new system, they would not prefer to use it, regardless of how good it is. Moreover, the contrast between the public sector's low preference of paper memos/reports and paper mail/letters and its high-choice frequency of them once again suggests an area for further improvement.

Theoretical, Managerial, and Pedagogical Implications

The findings of this comparative study, along with the related literature, generated the following four implications for communication theory, managers, and educators:

First, the findings of this study support the media-richness and media-choice theory by demonstrating the theory's capacity to explain (a) why different communication systems were selected for performing different activities (media richness) and (b) why significant differences existed between corporate and public organizations in using paper mail/letters and paper memos/reports (contextual factors such as formality, authority, and legitimacy). In addition, the findings of the study advance the theory by uncovering the imperfect relations among media richness, media choice, perceived impact on productivity, and user preference, and suggesting solutions to the problems. For example, groupware and intranet were ranked in the middle of richness hierarchy and the perceived positive impact on productivity but were least selected and least preferred. To solve the problem, communication technology training is suggested.

Second, as this study and the related literature indicate, to best facilitate effective and efficient communication in the Information Age driven by computers, both corporate and public organizations should use computerized communication systems (e.g., e-mail, fax, telephone, pager, voice mail, groupware and intranet) for routine organizational communication and collaboration, which usually involve numerous people at various locations and require quick responses. Face-to-face meetings are more appropriate for special situations that require great personal presence, strong persuasion, or tough negotiation and conflict resolution. Traditional paper mail, letters, memos and reports should be chosen when they are the only channels to reach readers or required by law as permanent, formal records.

If public organizations put the media-richness and media-choice theory into practice and reduce the heavy use of paper mail/letters and paper memos/reports, they can greatly increase organizational and personal productivity and decrease the high cost of the paper documents, thereby saving taxpayers' money.

Third, corporate and public organizations should provide employees with appropriate training programs when new computerized communication systems such as groupware and intranets are installed. Otherwise, users would not prefer to use these new systems even though the systems have stronger positive impact on organizational and personal productivity than the traditional face-to-face and paper-based systems do.

Finally, business and managerial communication educators should consider including the media-richness and media-choice theory and communication technology training into their curricula and requiring students to complete their course assignments by choosing appropriate systems.

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A Comparison of Workforce Skills: North Carolina Industry Leaders' Perceptions Vs. North Carolina Marketing Education Standard Course of Study

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Abstract

To determine if workforce skills North Carolina employers identified as being required by high school graduates for entry-level employment were integrated into the North Carolina Marketing Education Standard Course of Study, a matrix was developed. If industry leaders identified a competency or skill as being required for entry-level employment and that competency or skill was covered in more than 50% of the Marketing Education course offerings, then the skill was considered to be included in the North Carolina Marketing Education Standard Course of Study.

Introduction

Many young people across the country are entering the labor market without the necessary skills to succeed, while employers are having difficulty finding the trained workers needed to compete in today's global economy (Everett, 1995). Industry and education leaders conceive this to be the result of a lack of understanding by the North Carolina State Department of Public Instruction and current workforce preparedness educators' and employers' view of what should be taught in the public school system. With this belief in mind, as well as the constantly changing workforce, the continued demand for skilled employees requires educators to recognize and understand what skills employers think should be taught in high school. Further, the North Carolina Marketing Education Standard Course of Study used by educators as a curriculum guide should reflect the skills that employers believe should be taught during secondary education. For proper skill attainment, current workforce preparedness educators, such as marketing educators, should prepare students for the workplace by using the North Carolina Marketing Education Standard Course of Study. In order to have a properly prepared workforce, the North Carolina Marketing Education Standard Course of Study should emphasize the same skills that employers perceive as important for initial employment.

In the past, marketing education coordinators may have only emphasized routine, repetitive tasks. For example, marketing educators in high schools may have taught routine, repetitive tasks such as operating cash registers or stocking shelves. However, these simple skills may lessen the likelihood of promotion or advancement in the workplace. Performing such repetitive tasks may have limited employee's possibility of acquiring more complex skills such as *leadership skills* (Agency for Instructional Technology, 1992; Carnevale et al., 1991; Dole, 1989; McLaughlin et al., 1988; U.S. Department of Labor et. al, 1988). Yet, leadership skills are not part of the marketing education curriculum since North Carolina teachers are emphasizing *cognitive-type* skills at the same time that North Carolina employers are indicating the need for *affective domain-type* skills (Volk & Peel, 1994).

Another challenge facing educational leaders is convincing teachers that a change might be needed in the content taught in the classroom. When a standard course of study is developed for educators to follow, the content to be taught is presented in a suggested format. As a result, the format is continuously followed year after year without any adjustments to the content. Consequently, the skills taught to students today may be the same skills taught to students ten years ago. More advanced futuristic skills used in today's workforce are rarely introduced to the student in the workforce preparedness programs (Berryman & Bailey, 1992). In turn, students may be exiting secondary school with inadequate, out-of-date skills no longer used in the workplace (SCANS, 1992). Thus, communication is needed between employers and educators to determine what skills should be included in the Marketing Education Standard Course of Study. With the apparent lack of communication between employers and marketing educators, marketing high school program completers exit high school with cognitive- and psychomotor-type skills but lack affective-domain type skills needed when entering the world of work (Volk & Peel, 1994). Business leaders, according to Everett (1995), indicated employees with a higher level of employability skills are needed. Thus, business leaders and marketing educators need to collaborate to determine the skills that should be taught in the workforce preparedness program.

Statement of Problem

The collaboration that has taken place between business leaders and marketing educators led to the development of school to work or JobReady (as it is known in North Carolina). However, the issue of JobReady is still emerging. Many school systems and businesses are beginning to realize the importance of developing JobReady programs to prepare students for work and postsecondary education. Thus, JobReady allowed employers to obtain workers who are better prepared to (1) make decisions, (2) work as team players, (3) solve problems, and (4) learn (Everett, 1995). These skills are what industry leaders believe should be taught by educators in the classroom. Educators who emphasize JobReady programs build connections between the critical skills and competencies industry leaders and education leaders believe are needed for students to succeed beyond the school house to the roles they, the students, exhibit upon leaving school to become workers, parents, and citizens (Dewey, 1916).

Educators followed the *North Carolina Marketing Education Standard Course of Study* to *track* students into particular jobs. The tracking curriculum instructed educators to provide insight on the student's work habits. However, *tracking* provided no real insight to the educator regarding the desires of industry leaders' beliefs of what should be taught in the classroom. Many educators started and ended the analysis of the student's job status by simply checking to see if the students were working according to their schedule. In addition, a lack of communication was apparent between the student's employer and the educator which disallowed the educator to identify the skills that employers believed the student should be taught in the classroom. Without the identification of those needed skills, the student fell into routine work habits such as operating cash registers and stocking shelves. These repetitive tasks resulted in a lack of realization as to what skills students should be taught in the classroom. Instead of *tracking* students into particular jobs, JobReady broadened students career options by broadening their skill level (Everett, 1995). In turn, students who participate in JobReady programs gained insight on what skills that they, the students, would not have otherwise gained.

The success of the JobReady program depended upon proper skill identification and preparation. For proper skill identification and preparation to occur, the preference of skills employer's view as important for high school graduates must coincide with educator's view of which skills are most important. According to the *Inventory of Workforce Skills Needed by High School Graduates* (IWSRBGHG) (Peel, Joyner,& Volk, 1997), nine skills are deemed necessary for proper skill preparation. These skills included: (1) Critical Thinking Skills (2) Group Interaction Skills (3) Reading, Writing, & Math Skills (4) Communication Skills (5) Personal Development Skills (6) Computer Skills (7) Technological System Skills (8) Leadership Skills and (9) Employability Skills. Are these skills included in the North Carolina Marketing Education Standard Course of Study? In addition, are these skills taught in North Carolina Marketing Education Programs? Logically, the problem of this study is to determine if the skills identified by employers in the IWSNBHSG (Peel, Joyner, & Volk, 1997) as being important are included in the Marketing Education Standard Course of Study.

Hypothesis

The following null hypothesis was tested: A significant difference will not exist in the skills identified by selected North Carolina employers required for entry-level employment and the Marketing Education curriculum as mandated by the North Carolina Standard course of study.

Review of Related Literature

As previously indicated, the purpose of this study was to determine perceptions of what skills are needed for high school graduates to be employable IN entry-level positions. A review of related literature revealed extensive information concerning workplace skills. The review of related literature presented is limited to the complexity of communication, and the reading and writing skills included in IWSRBHSG (Peel, Joyner, & Volk). The review of these employability skills describes the desire of employers' requirements for the workplace and employer's beliefs of what workforce preparedness skills should be included in the North Carolina Marketing Education Standard Course of Study. The literature also gives a perspective of how knowledge and ability to learn connects to the work world.

Workforce Skills

Students need the ability to perform in a new environment—the work world (Greenville, Pitt Chamber, 1995). Much of the recent attention toward improving communication skills of high school graduates may be accredited to the Secretary's Commission on Achieving Necessary Skills (SCANS) Report (U.S. Department of Labor, 1991). The SCANS report captured the attention of educators, parents, politicians, and business leaders by addressing the "workplace know how" (Echternacht & Wen, Ling-Yu). In addition, SCANS outlined changes in the world of work and the demands of the current workplace. One result of the SCANS report has led North Carolina workforce preparedness educators to develop a JobReady program to enhance high school graduates' skills. Thus, the JobReady program sets the agenda of how the program will be implemented into the North Carolina State Curriculum, specifically Marketing Education. Successful integration of the proper skills into the North Carolina Marketing Education Standard Course of Study requires cooperation between North Carolina Industry and North Carolina Workforce Preparedness Educators. Therefore, industry leaders and workforce preparedness educators should work together in developing the content of how communication skills are to be emphasized in the North Carolina Education Standard Course of Study.

Employers are requiring high school graduates who directly enter the workplace to follow instructions and speak clearly. Consequently, meeting employer requirements requires the high school graduate to carefully listen to directions given and complete the task in an orderly fashion as directed to do so. Speaking clearly requires the graduate to communicate clearly through understandable spoken pronunciation. "The employee who is able to understand directions and communicate ideas may make major contributions in the workplace" (Volk & Peel, 1994). Thus, an employee who possesses such skills is likely to move from an entry-level position to an intermediate position more rapidly than an employee who does not have such skills. For workforce skills to become present within the high school graduate, proper skill preparation must be provided to high school students by workforce preparedness educators. Thus, workforce preparedness educators should develop a relevant curriculum that prepares students for the real world (Treichel, 1991). Preparing individuals with proper workforce type-skills such as the ones mentioned in IWSRBHSG may benefit high school graduates by allowing flexible employment opportunities (Holton & Trott, 1996) within the work place. Flexibility, according to Holton & Trott, may allow the employee to move toward higher opportunities of employment within the organization if these skills are possessed. Thus, out of incentive, a high school graduate may perform with greater effort allowing for success in the workforce. In order for high school graduates to meet the requirements of business leaders for flexible employment opportunities and achieve success in the transition of school-to-work, the North Carolina Marketing Education Standard Course of Study should emphasize the development of reading, writing, and listening skills.

One common thread among business leaders is a strong belief that high school graduates should possess strong communication skills. "The key is finding people who come to the workforce with communication skills and the ability to learn" ("Interview," 1997). Finding properly prepared employees allows businesses to grow stronger as well as improve overall elements of success. "Employers are looking for the quality of the person, work ethic, and ability to read for information and to communicate—to interface with customers and to be able to talk with them" ("Interview," 1997). The lack of communication skills training received by many high school graduates prior to entering the world of work may explain the poor performance demonstrated in the work place. Employees who have poor communication skills may lack the ability to develop the bond among co-workers needed for the creation of a team within the business structure. Therefore, communication skills, such as the ones mentioned in the IWSRBHSG should be included in the North Carolina Standard Course of Study, specifically Marketing Education. Including communication in the North Carolina Marketing Education Standard Course of Study prepares the high school graduate for successful interaction among employees and fellow employees.

Communication skills involve listening to other people, negotiating with other people, writing effectively, and speaking efficiently. "I cannot think of any skills more important than communication skills" ("Interview," 1997). Communication impacts all aspects of our life and is applicable to the study of any field (National Standards For Business Education, 1995). Communication skills within industry are constantly changing at a rapid pace as new materials and procedures advance daily. As a result, proper communication skills must also advance to keep abreast of the changing times. Thus, an advanced shift in the improvement of communication skills must coincide with industry advancements for effective communication to exist. The result of advancing skills in industry has not only led industry leaders to require their employees possess effective communication skills, but, also, those same industry leaders now require their employees possess greater customer service and teamwork skills. "Customer service and teamwork skills are entry-level credentials. How one learns is at least important as what one knows" (Feller, 1996). Thus, customer service and teamwork are communication skills critical elements to any company's success.

In turn, exclusion of these two communication skills from the North Carolina Marketing Education Standard Course of Study denies the high school graduate proper employability characteristics to succeed in the workplace. According to Labor Secretary Robert Reich "There is a disconnect between the skills people have and the skills the economy requires" (U.S. Department of Labor, 1993). Employers desire high school graduates who enter the workplace to possess specific entry-level credentials. Thus, the graduate who lacks the proper entry-level skills may not be considered for employment upon graduation. Lacking proper entry-level communication skills may not only prevent employment opportunities, but lack of communication may prevent all relationships within one's livelihood (Bolton, 1979). The development of communication skills among students starts as early as pre-school, where young children interact among one-another through games and simple activities. Unfortunately, many of these games and activities which enhance communication skills diminish through elementary, middle-grades, and high school, as the educator falls into a repetitive task of teaching. Repetitive teaching involves routine teaching of the same skills consistently, year after year, without variance from the teacher's instructional methodology. Thus, teachers who have fallen into this routine may deny the student an opportunity to obtain the proper skills to communicate efficiently. "A common complaint by employers in business and industry is that entry level employees lack adequate communication skills to perform effectively on the job" (Singh-Gupta & Troutt-Ervin, 1997). Altering this communication deficiency requires educators to incorporate teamwork activities throughout the student's educational career.

According to Bailey (1990), the success or failure of team-based work within organizations depends upon the basis of the interaction among the team members. Therefore, students should learn to cooperate, deal with issues, and handle adverse situations through work-based simulations created by the teacher to enhance the students' ability to communicate effectively. In turn, the students may relate communication skills learned to the work-world. Thus, the need for communication is created and can be transferred by the student when entering the work-world. Further, communicating effectively requires the understanding of words used in the workforce. Thus, high school graduates need capable reading skills. "Generally, high school graduates who are seeking employment need to be proficient in reading at a level comparable to reading the local newspaper" (Volk & Peel 1994). In addition to being able to read the local newspaper, high school graduates should be able to interpret: (1) diagrams (2) records (3) charts (4) graphs (5) tables (6) directories and (7) specifications (SCANS, 1991). The inability to read may limit the high school graduate ability to read and follow simple directions; which is a skill desired by many employers. Many factory leaders who train new mechanics to maintain modern equipment spend more time teaching employees to read and to be competent at basic math than on the actual technical training (Bailey, 1990). According to Jack Smith, CEO of General Motors, education programs should focus on reading and writing "in a way that puts this knowledge in context of what's needed on the job" and must give students a solid foundation in the basic skills required in all occupations. Smith went on to say "vocational education in high school increases the number of options a student has" upon entering the work force. Thus, workforce preparedness programs, specifically in the North Carolina Marketing Education Standard Course of Study, should include work-place skills capable of preparing high school graduates to possess reading skills for success in the world of work.

Along with reading and writing, successful communication involves listening. "The secret of being heard—how to really talk to another person—is for the most part simply to listen" (Gordon, 1995). Listening involves understanding what a person is saying or says. According to Gordon, listening skills should also involve understanding nonverbal communication such as: (1) listening to the sound of voices as much as the words (2) Look at how people talk both with their faces and bodies. (3) hearing with our eyes. Employees who listen attentively to their employers may follow directions more accordingly. Thus, listening skills is another form of communication that should be included in The North Carolina Marketing Education Standard Course of Study.

Previous research has shown employers are disenchanted with the level of reading skills possessed by individuals hired to fill vacancies in the workforce (Forum, 1997). Thus, high school graduates should possess proper reading-related interpretation skills upon graduation. Employers are expecting their entry-level employees to bring reading skills to the job (Forum, 1997). If one cannot read, one may not communicate effectively. Thus, a high school graduate who fails to communicate may fail in relating to others (Bolton, 1979). "Eighty percent of the people who fail at work do so for one reason: They do not relate well to other people" (Bolton, 1979).

North Carolina Marketing Education Standard Course of Study

The North Carolina Marketing Education Standard Course of Study mentioned several times in this study was prepared by the Public Schools of North Carolina, under the auspices of the State Board of Education, and the Department of Public Instruction. Within the North Carolina Education Standard Course of Study lies seven program areas. The program areas are as follows: (1) Agricultural Education (2) Business Education (3) Career Development (4) Family and Consumer Science Education (5) Health Occupation Education (6) Marketing Education (7) Technology Education and (8) Trade and Industrial Education. Within each program area are course blueprints, which describe the scope of the curriculum for a given course/program. The blueprints include units of instruction, core competencies in each unit, and specific objectives for each competency. The core competencies explain what overall component of the specific objective is covered. Specific objectives describe the competency component in more detail. Illustrated in the blueprints are recommended sequences of the units and competencies, the weight and importance of the objective within the course or unit, and the number of hours to be devoted to each. The overall intention of the blueprints is to allow teachers to follow a standard format when planning daily lessons, constructing tests, and planning the course of work for the year. The overall mission and purpose of the North Carolina Education Standard Course of Study is to aid students in developing effective participation in an international economy as workers and citizens. As a result, high school students would be properly prepared with skills for the workplace upon graduation.

Under the guidelines of the North Carolina Education Standard Course of Study, Marketing Education was developed to prepare students for advanced placement in marketing and management careers for future studies in two-year technical/community colleges or four-year colleges or universities. Marketing Education combines the use of technology with academics to build this foundation within high school students to develop competence in marketing functions and human resource foundations. Thus, Marketing Education provides students with skills necessary to succeed in the workplace. The goal in preparing the North Carolina Marketing Education Standard Course of Study is to assist in marketing educators in planning effective Marketing Education programs that connect local school systems with businesses. One of the reasons for the linkage between public schools and business is that business and industry leaders are demanding that high school graduates should possess skills in academic and technical areas. Therefore, upon graduation, high school students should have a well-rounded education which enables them to pursue employment or further education in their chosen marketing career.

Within the scope of Marketing Education, students have the opportunity to begin taking courses in seventh grade. The program offerings continue through 12th grade as students have the opportunity to develop and apply leadership, social and civic skills through DECA, an association for Marketing Education students. Through DECA, organized activities help the business community, faculty, and parents to interpret the Marketing Education Program. Marketing Education Programs in secondary schools offer students realistic career choices regarding marketing careers. Students apply communication, problem solving, and critical thinking skills through work-based learning activities. Thus, upon graduation, high school graduates may advance more rapidly in a chosen marketing career. The Marketing Education Standard Course of Study has six strands:

- Marketing Technologies
- Sales and Technical Services
- Travel, Tourism, and Recreation Marketing
- Business Management and Small Business/ Entrepreneurship
- Fashion Merchandising
- Business Administration

Research Methodology and Design

Survey research methodology and a researcher prepared matrix were used to test the null hypothesis. Dillman (1978) stated survey research methodology should be used when dealing with quantitative data, controlling costs of conducting research, and including a large portion of the population in the sample size. Therefore, survey research was appropriate as the research involved collecting and testing quantitative data from all participating North Carolina employers. A mail survey format was used to collect data for this study. According to Kerlinger, (1986) surveys may be used to study "large and small populations (or universes) by selecting and studying samples chosen from the populations to discover the relative incidence, distribution, and interrelations of sociological and psychological variables" (p. 376). Random sampling of the population often enables researchers to collect the same information rendered by a census, yet more efficiently (Kerlinger, 1986). The mail questionnaire format selected for this study ties to Kerlinger's pattern by enabling the researcher to collect data from a relatively large sample of North Carolina employers more efficiently than would be possible through other means.

Participants

The participants surveyed for Mobley's (1998) study included all types of businesses operating in North Carolina. The sample identified by the North Carolina Employment Security Commission's On-line Labor Market Information services (available at http://www.esc.state.nc.us/html/lmi.html) for the last quarter of 1996, identified the largest private-sector employers by county in North Carolina. Since the Employment Security Commission released only private-sector information, some of the listings excluded employers who were, in actuality, among the largest within each county. For example, public universities and government installations, which would be the largest or among the largest of employers, were not included in the information received from the Employment Security Commission.

Data Collection Instrument

The data collection instrument consisted of a survey questionnaire which was mailed to contacts for the largest employers identified through the Employment Security Commission's On-line Labor Market Information services. The instrument design was based upon Volk & Peel's (1994) Basic Academic and Vocational Skills Required of Employees with Only a High School Diploma. While a limitation of that instrument is that validity or reliability data was not reported, reliability and validity were addressed in the methodology for this study. The resulting instrument was administered to 50 individuals enrolled in two workforce development education-related courses at East Carolina University. The results were collected and analyzed to test for reliability. The Cronbach's Alpha for the pilot study was alpha = .92 indicating a moderately high reliability. According to Cronbach (1951), coefficients above 0.6 are desirable and values above 0.8 are needed for a developed scale. Therefore, the coefficient calculated for the instrument, alpha = .92, is above the value needed for a developed scale or instrument. To establish validity of the instrument, a panel of five experts reviewed the instrument. Reviewers were familiar with either workplace skills or survey research. Panel members were asked to indicate whether each item on the instrument was valid for measuring both (1) the requirement or non-requirement of skills and (2) the possession or non-possession of skills. Items that were not clear to the panel members were either eliminated or reconstructed.

Because the Volk & Peel (1994) study sought response from manufacturing firms only, with 500 or more employees, the present study required that the instrument be adapted to accommodate a broader range of businesses. Thus, the wording of demographic items reflected the expanded emphasis. Thus, retaining the original Volk & Peel (1994) descriptors, the survey collected data related to respondents' opinions regarding the extent to which skills were required from a high school graduate upon initial employment. The IWSNBHSG (Peel, Joyner, & Volk, 1997) addressed the following skill areas: (a) reading, writing, and math skills; (b) communication skills; (c) critical thinking skills; (d) group interaction skills; (e) personal development skills; (f) computer skills; (g) leadership skills; and (h) employability skills. Respondents were instructed (1) to place a check in the box to indicate if the skill was required for initial employment of high school graduates and (2) to place a check in the box to indicate if the skill was possessed by high school graduates at the time of initial employment.

Instrument Coding

Each instrument was coded using a six-digit number to identify the county, the type of business/industry, and the actual firm receiving the survey. This information enabled the researcher to determine the status of survey instruments as well as to desegregate data based on demographics. Approximately two weeks after the initial mailing, two other attempts were made to improve the overall response rate. A second mailing was made addressing individuals who had not responded to the first mailing. Approximately two weeks after the second mailing, the researcher contacted non-respondents via telephone to request that the contact person complete the instrument. The data collection procedures used for assembling and mailing questionnaires and appropriate follow-up mailings were modeled after the procedures advocated by Dillman (1978).

Matrix Development

Representatives from employers in each of North Carolina's 100 counties were requested to indicate if certain workforce skills were required for initial employment by high schools graduates. In addition, participants were requested to indicate if a majority of high school graduates possessed certain workforce skills at the time of initial employment. To test the null hypothesis, *A significant difference will not exist in the skills identified by selected North Carolina employers required for entry-level employment and the Marketing Education curriculum as mandated by the North Carolina Standard course of study, Mobley (1998) used the Chi-Square Test of Independence to identify the skills employers perceived as being required for entry-level employment.* The dependent variable was the workforce skill; while the independent variables were (1) two points of the workforce skill: required or not required and (2) two additional points of the workforce skill: possessed or not possessed. The Chi Square Test of Independence was used to ascertain the probability of observed differences among employers regarding (1) the required or non-required status of a workforce skill and (2) the possessed or not possessed status of a workforce skill. According to Hinkle, Wiersma, and Jurs (1979), the Chi Square statistic is frequently used to compare two or more groups on a nominal or categorical variable with two or more categories. The results from the Chi-Square Test of Independence formed the first part of the matrix. The skills identified from the Chi-Square Analysis as significant were placed on the left side of the matrix grid.

To form the second part of the matrix grid, the North Carolina Marketing Education Standard Course of Study was used. The North Carolina Marketing Education Curriculum covers grades 7 – 12; however, only courses at the secondary level were included in the study. A component of the Marketing Education Curriculum is Vocational Education Competency Achievement Tracking System (VoCats). These VoCats course blueprints contain competencies and objectives pertaining to the course content to be covered throughout the year or semester. The competencies for each marketing education course with a developed VoCats course blueprint were placed at the top of the grid. Each skill identified as being required by employers for initial employment after graduation from as high school was compared to the competencies obtained from the North Carolina Marketing Education course blueprints. Within the matrix, the researcher placed an "x" in the grid box where the skills coincided. In other words, the "x" was placed to indicate that a course competency matched a skill identified as being required for entry-level employment. A blank grid box indicated the skills were not a part of the VoCats course blueprints. Ultimately, the results from the grid allowed the researcher to identify what skills were indicated by employers and included in the North Carolina Marketing Education Standard Course of Study and what skills were indicated by employers, but not included in the North Carolina Marketing Education Standard Course of Study.

Data Collection Process

Questionnaires were mailed to each of the human resource management officers of 1,000 North Carolina Firms. Of these 1,000 survey instruments, 32% or 320 instruments were mailed to employers in the Coastal geographical region of North Carolina, 43% or 430 instruments were mailed to employers in the Piedmont geographical region of North Carolina, and 25% or 250 instruments were mailed to employers in the Mountain geographical region of North Carolina. Questionnaires were returned by 105 respondents from 72 counties in North Carolina.

The first and second mailing attempted to obtain the probable response rate from the ten largest employers from every county in North Carolina. As mentioned earlier, the Employment Security Commission web list and county Chambers of Commerce were used to obtain addresses. If the top ten employers could not be identified from the Employment Security Commission web list or county chamber's, a substitution was made with an equivalent size company from the North Carolina Manufacturer's Register. The first mailing consisted of 792 mailed surveys—81 surveys were returned, 62 were usable. A second mailing was sent to 400 individuals from businesses that had not responded to the first mailing. Thirty-five surveys were returned—30 were usable. From the 80 responses received from the first two mailings, the number of responses received per county ranged from 1 to 4. With the goal of representation from each of the 100 counties in North Carolina, the probable response rate was usable instrument per North Carolina county. Approximately two weeks after the second mailing, one business in a county that had not responded to the survey was contacted via fax. Twenty-five additional businesses that had not previously responded were contacted via fax. Fifteen of those twenty-five businesses responded, and all of those were usable. The results of the three attempts to collect data generated 105 respondents from 72 of the 100 counties. With the response rate being 105 of 1,000 plus instruments, a stratified sampling technique was then employed to obtain a representative sample based on the three geographical regions—Mountain, Piedmont, and Coastal—of North Carolina. Information presented in Figure 1.1 describes the number of counties per North Carolina geographical region, the number of employers per North Carolina geographical region based upon the *1997 North Carolina Manufacturers Directory*, the percentage of employers per North Carolina geographical region, the number of responses per geographical region, and percentage of responses per North Carolina geographical regional.

Coastal Region. The percentage of employers in the Coastal Region was 32%, while the percent of respondents from the Coastal Region was 30%. The percent of participants responding from the Coastal Region was approximately the same as the percent of employers in the region. Therefore, the percent of respondents was representative of the number of employers in the Coastal Region.

Piedmont Region. The percentage of employers in the Piedmont Region was 43%, while the percent of respondents from the Piedmont Region was 44%. The percent of participants responding from the Piedmont Region was approximately the same as the percent of employers in the Piedmont Region. Therefore, the percent of respondents was representative of the number of employers in the Piedmont Region.

Mountain Region. The percentage of employers in the Mountain Region was 25%, while the percent of respondents from the Mountain Region was 26%. The percent of participants responding from the Mountain Region was approximately the same as the percent of employers in the Piedmont Region. Therefore, the percent of respondents was representative of the number of employers in the Mountain Region.

With the low response rate from the top 10 employers in each of North Carolina's 100 counties, a stratified sample based upon the three North Carolina geographical regions was used. Based upon this information—when the respondents are grouped by region—the number of respondents corresponds accordingly to the number of employers within the region. Therefore, the results are generalizable by North Carolina geographical regions.

Methodology

For this study results from a survey questionnaire (Mobley, 1998) mailed to employers identified through The Employment Securities Commission (available at *http://www.esc.state.nc.us/html/lmi.html*) On-line Labor Market Information services for the last quarter of 1996. The survey collected data related to employer opinions regarding the extent to which skills were required for high school graduates employment upon entering the workforce. The survey addressed the following skill area: (a) reading, writing, and math skills; (b) communication skills; (c) leadership skills; (d) group interaction skills; (e) personal development skills; (f) computer skills; (g) leadership skills; and (h) employability skills. Respondents were instructed to: (1) place a check in the box to indicate if the skills was required for initial employment of high school graduates and (2) place a check in the box to indicate if the skill was possessed by high school gradates at the time of initial employment.

Analysis of Data

A researcher prepared matrix was used to ascertain if the course competencies identified by the North Carolina Standard Course of Study concurred with the skills identified by Mobley (1998) as being required for entry-level employment in North Carolina. Once skills were identified by Mobley (1998) those skills were compared to the North Carolina Marketing Education Course of Study Blueprints. The completion of the matrix produced results that allowed the researcher to identify both the skills indicated by employers as being required for entry level employment and included in the North Carolina Marketing Education Standard Course of Study as well as those skills which were indicated by employers as being required for entry level employment but were not included in the North Carolina Marketing Education Standard Course of Study. The completed matrixes were verified by a third party who was an expert in workforce development skills. The verification by an external party allowed for a revisement within the matrix if needed.

The acquisition of the North Carolina Marketing Education Standard Course of Study unfolded into a two-step process. The first contact was made to a North Carolina Marketing Education State

Figure 1.1

NC Region	Count	Total Number of Employers by Region	Percent by Region	Survey Response by Region	Pecent by Region
Coastal	32	3,331	32%	32	30%
Piedmont	33	4,476	43%	46	44%
Mountain	35	2,602	25%	27	26%
Total	100	10,409	100%	105	100%

Department of Public Instruction Consultant to obtain all secondary level marketing VoCATS course blueprints. The first contact resulted in the acquisition of six of 10 secondary level VoCATS course blueprints. A second attempt was made, once again, to request from a state consultant for acquisition of the four missing blueprints. The result was an acquisition of two of the four remaining blueprints. However, it was learned that two of the VoCATS blueprints were unavailable. Thus, Marketing Advanced Studies, Course 6699, and Marketing Technology and Media, Course 6665, were excluded from this study. The courses from the North Carolina Marketing Education VoCATS Blueprints included in this study were as follows: (1) Business and Financial Management I & II; (2) Fashion Merchandising; (3) Marketing Education; (4) Marketing Management; (5) Principles of Business I & II; (6) Small Business/Entrepreneurship I & II; (7) Strategic Marketing; and (8) Travel, Tourism, and Recreation Marketing.

To assist the reader in comprehending the tables developed by the researcher, the layout of each section is as follows: Tables are used to present containing competencies included in the course being analyzed and the workforce skills indicated by employers as required for entry-level employment upon graduation from high school. The top of the table contains the course competencies, while the left side of the table contains the workforce skills. If the competencies included in the particular Marketing Education course addressed the skills indicated by employers' for entry-level employment, an "x" was placed in the grid box. A blank grid box indicates the skill was not addressed by the North Carolina Marketing Education Standard Course of Study. Information presented in Tables 1-8 indicates if the skills were or were not addressed by the course competency. Course competencies appear on top part of the matrix grid. The skills identified by Mobley (1998) that employers require for entry level employment: *(1) ability to read newspapers, (2) understand job-related words, (3) perform simple math functions, (4) listen to presentations, (5) follow instructions, (6) give clear directions, (7) speak in clear sentences, (8) troubleshoot problems, (9) understand problem solving, (10) make independent decisions, (11) work well with colleagues work, (12) well with supervisors, (13) work well as a team-member, (14) recognize gender equality and (15) cultural diversity, (16) participate in group discussion, (17) respect other opinions, (18) have a willingness to ask questions, (19) exhibit self-esteem, (20) establish personal goals, (21) work toward advancement, (22) recognize career options, (23) possess organizational skills, (24) demonstrate punctuality, (25) maintain work habits, and (26) practice a healthy lifestyle.*

Business and Financial Management I & II

Table 1

Matrix for Workforce Skills and Marketing Education Course No: 6625 (Business Management I and II)

	6625 A	6625B	6625 C	6625 D	6625 E	6625 F	6625 G	6625 H	6625I	6625 J
Business Management 6625: I & II										
Reading, Writing, & Math										
Read newspaper		x	x				x			x
Understand job-related words	x	x	x	x	x	x	x	x	x	
Perform simple math functions	x					x	x	x	x	x
Communication Skills										
Listen to presentations					x				x	
Follow instructions			x	x	x	x				
Give clear directions			x		x	x		x		x
Speak in clear sentences			x		x	x		x		
Critical Thinking Skills										
Troubleshoot problems	x	x	x	x					x	x
Understand problem-solving		x							x	
Make independent decisions	x	x	x	x				x	x	x
Group Interaction Skills										
Work well with colleagues					x					
Work well with supervisors					x					
Work well as a team-member				x	x					x
Recognize cultural diversity		x	x	x	x					
Recognize gender equality		x	x	x	x					x
Participate in group discussion					x			x		x
Respect other opinions					x				x	
Willing to ask questions					x		x	x	x	
Personal Development Skills										
Exhibit self-esteem					x			x		
Establish personal goals			x							x
Work toward advancement			x		x					
Recognize career options			x					x		x
Leadership Skills										
Organizational effectiveness			x	x	x		x	x	x	x
Employability Skills										
Demonstrate punctuality					x	x		x		
Maintain work habits			x	x	x			x		x
Practice a healthy lifestyle					x			x		x
Take pride in work			x		x			x		
Have knowledge of company			x	x	x			x	x	x
Maintain quality standards			x	x	x			x	x	
Technological Systems Skills										
Select proper equipment for task						x		x		x

Marketing Management
Table 2
Matrix for Workforce Skills and Marketing Education Course No: 6822 (Marketing Management)

	6822A	6822B	6822C	6822D	6822E	6822F	6822 G	6822 H	6822I	6822J	6822 K	6822 L
Marketing Management 6822												
Reading, Writing, & Math												
Read newspaper												
Understand job-related words	x	x	x		x		x		x			x
Perform simple math functions	x	x	x	x	x	x	x		x	x	x	x
Communication Skills												
Listen to presentations	x	x	x	x	x	x	x	x		x	x	
Follow instructions	x	x	x	x	x	x	x	x	x	x	x	x
Give clear directions	x	x	x	x	x	x	x	x	x	x	x	x
Speak in clear sentences	x	x	x									
Critical Thinking Skills												
Troubleshoot problems		x	x	x	x	x	x	x	x	x	x	x
Understand problem-solving			x	x	x		x			x		x
Make independent decisions		x	x	x	x	x	x	x	x	x		x
Group Interaction Skills												
Work well with colleagues		x					x		x	x		
Work well with supervisors		x							x	x		
Work well as a team-member		x					x		x			
Recognize cultural diversity		x										
Recognize gender equality		x				x	x					
Participate in group discussion									x			
Respect other opinions									x			
Willing to ask questions							x				x	
Personal Development Skills												
Exhibit self-esteem	x					x	x		x			
Establish personal goals												
Work toward advancement		x							x	x		
Recognize career options	x								x			
Leadership Skills												
Organizational effectiveness		x	x	x	x		x	x		x	x	x
Employability Skills												
Demonstrate punctuality		x								x		x
Maintain work habits		x			x		x			x	x	x
Practice a healthy lifestyle											x	
Take pride in work			x		x			x	x			
Have knowledge of company	x	x	x	x	x	x	x	x	x	x	x	x
Maintain quality standards		x					x		x	x	x	x
Technological Systems Skills												
Select proper equipment for task		x	x	x	x	x	x	x	x	x		x

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Small Business/Entrepreneurship
Table 3
Matrix for Workforce Skills and Marketing Education Course No: 6615 (Small Business)

	6615 A	6615 B	6615 C	6615D	6615 E	6615 F	6615 G	6615 H	6615I	6615 J	6615 K	6615 L
Small Bus./Entrepreneurship I & II 6615												
Reading, Writing, & Math												
Read newspaper			x									
Understand job-related words	x	x	x	x	x	x	x	x	x	x	x	x
Perform simple math functions	x	x	x	x			x	x	x		x	x
Communication Skills												
Listen to presentations												
Follow instructions			x					x	x			
Give clear directions	x	x	x	x	x		x	x	x	x		
Speak in clear sentences	x	x	x	x	x	x	x	x	x		x	
Critical Thinking Skills												
Troubleshoot problems			x		x	x	x		x	x	x	x
Understand problem-solving			x				x		x		x	x
Make independent decisions		x	x		x	x	x	x	x		x	x
Group Interaction Skills												
Work well with colleagues		x			x				x	x		
Work well with supervisors		x							x	x		
Work well as a team-member		x	x						x			
Recognize cultural diversity									x			
Recognize gender equality									x			
Participate in group discussion		x							x	x		
Respect other opinions									x	x		
Willing to ask questions			x	x					x	x		x
Personal Development Skills												
Exhibit self-esteem	x		x	x					x	x		
Establish personal goals					x							
Work toward advancement									x			x
Recognize career options	x			x					x			x
Leadership Skills												
Organizational effectiveness	x	x		x	x		x		x			x
Employability Skills												
Demonstrate punctuality										x	x	x
Maintain work habits			x				x			x	x	x
Practice a healthy lifestyle										x	x	x
Take pride in work										x	x	x
Have knowledge of company		x	x	x	x	x	x	x	x	x	x	x
Maintain quality standards		x						x		x	x	x
Technological Systems Skills												
Select proper equipment for task			x				x		x			x

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Marketing
Table 4
Matrix for Workforce Skills and Marketing Education Course No: 6621 (Marketing)

	6621 A	6621 B	6621 C	6621 D	6621 E	6621F	6621 G	6621 H
Marketing 6621								
Reading, Writing, & Math								
Read newspaper		x	x	x	x		x	
Understand job-related words	x	x	x	x	x	x	x	x
Perform simple math functions			x	x	x			x
Communication Skills								
Listen to presentations	x			x	x	x	x	x
Follow instructions	x		x	x	x	x	x	x
Give clear directions	x	x		x	x	x	x	x
Speak in clear sentences	x	x	x	x	x	x	x	x
Critical Thinking Skills								
Troubleshoot problems								
Understand problem-solving					x			
Make independent decisions			x		x			
Group Interaction Skills								
Work well with colleagues	x				x			x
Work well with supervisors								x
Work well as a team-member	x							x
Recognize cultural diversity	x				x		x	
Recognize gender equality	x				x		x	
Participate in group discussion	x							
Respect other opinions								
Willing to ask questions	x				x	x		
Personal Development Skills								
Exhibit self-esteem	x	x			x			
Establish personal goals	x	x		x				
Work toward advancement	x			x				
Recognize career options	x	x		x			x	
Leadership Skills								
Organizational effectiveness	x		x		x		x	x
Employability Skills								
Demonstrate punctuality	x			x	x			
Maintain work habits	x			x		x		
Practice a healthy lifestyle				x		x		
Take pride in work	x			x				
Have knowledge of company	x	x	x	x	x	x		x
Maintain quality standards	x			x	x	x	x	x
Technological Systems Skills								
Select proper equipment for task			x	x		x		x

Principles of Business I & II

Table 5

Matrix for Workforce Skills and Marketing Education Course No: 6600 (Principles of Business I & 11)

	6600 A	6600 B	6600 C	6600 D	6600 E	6600 F	6600 G	6600 H	6600 I	6600 J
Principles of Business I & II 6600										
Reading, Writing, & Math										
Read newspaper	x		x	x	x		x		x	
Understand job-related words	x	x	x	x	x	x	x	x	x	
Perform simple math functions	x	x	x	x	x	x	x	x	x	
Communication Skills										
Listen to presentations							x		x	
Follow instructions			x	x	x	x	x	x	x	
Give clear directions			x			x	x		x	x
Speak in clear sentences	x		x			x	x		x	x
Critical Thinking Skills										
Troubleshoot problems	x			x	x	x		x	x	
Understand problem-solving	x				x	x	x	x	x	
Make independent decisions		x			x	x		x	x	
Group Interaction Skills										
Work well with colleagues		x					x		x	x
Work well with supervisors							x		x	x
Work well as a team-member							x		x	x
Recognize cultural diversity	x	x					x		x	x
Recognize gender equality	x	x					x		x	x
Participate in group discussion							x		x	x
Respect other opinions			x				x		x	x
Willing to ask questions			x			x	x	x	x	x
Personal Development Skills										
Exhibit self-esteem									x	x
Establish personal goals					x	x			x	
Work toward advancement			x			x		x	x	
Recognize career options							x		x	
Leadership Skills										
Organizational effectiveness	x		x	x	x	x	x		x	x
Employability Skills										
Demonstrate punctuality						x		x	x	
Maintain work habits			x		x		x	x	x	
Practice a healthy lifestyle								x		
Take pride in work			x			x		x		
Have knowledge of company	x	x		x	x	x		x	x	x
Maintain quality standards				x		x	x		x	x
Technological Systems Skills										
Select proper equipment for task	x	x		x	x	x	x		x	x

Fashion Merchandising

Table 6

Matrix for Workforce Skills and Marketing Education Course No: 6636 (Fashion Merchandising)

	6636A	6626B	6636C	6636D	6636E	6636F	6636 G
Fashion Merchandising: 6636							
Reading, Writing, & Math							
Read newspaper	x		x		x		x
Understand job-related words	x	x	x	x	x		x
Perform simple math functions			x		x		x
Communication Skills							
Listen to presentations	x			x		x	
Follow instructions					x	x	x
Give clear directions	x	x	x	x		x	
Speak in clear sentences	x	x	x	x		x	x
Critical Thinking Skills							
Troubleshoot problems	x	x			x	x	
Understand problem-solving	x	x			x		
Make independent decisions	x	x	x		x		
Group Interaction Skills							
Work well with colleagues					x	x	
Work well with supervisors					x		
Work well as a team-member	x	x			x	x	
Recognize cultural diversity	x	x	x				x
Recognize gender equality	x	x	x				x
Participate in group discussion	x				x		
Respect other opinions							x
Willing to ask questions	x	x	x		x	x	
Personal Development Skills							
Exhibit self-esteem	x		x		x		x
Establish personal goals		x		x	x		
Work toward advancement		x		x			
Recognize career options	x			x	x		
Leadership Skills							
Organizational effectiveness	x	x	x		x	x	
Employability Skills							
Demonstrate punctuality		x		x	x		
Maintain work habits			x	x		x	
Practice a healthy lifestyle	x			x			
Take pride in work		x	x	x	x		
Have knowledge of company	x		x	x	x	x	
Maintain quality standards	x		x	x	x		
Technological Systems Skills							
Select proper equipment for task	x		x		x	x	

Travel, Tourism, and Recreation Marketing

Table 7

Matrix for Workforce Skills and marketing Education Course No: 6645 (Travel & Recreation)

	6645 A	6645 B	6645 C	6645 D	6645 E	6645 F
Travel/Tourism, & Recreation 6645						
Reading, Writing, & Math						
Read newspaper	x	x		x	x	x
Understand job-related words	x	x	x	x	x	x
Perform simple math functions			x		x	
Communication Skills						
Listen to presentations		x				x
Follow instructions	x	x				x
Give clear directions	x	x		x	x	x
Speak in clear sentences	x	x	x	x	x	x
Critical Thinking Skills						
Troubleshoot problems			x	x		
Understand problem-solving				x		
Make independent decisions		x		x		
Group Interaction Skills						
Work well with colleagues			x	x		
Work well with supervisors			x	x		
Work well as a team-member			x	x		
Recognize cultural diversity			x	x	x	
Recognize gender equality			x	x	x	
Participate in group discussion			x	x		
Respect other opinions			x			
Willing to ask questions			x	x	x	
Personal Development Skills						
Exhibit self-esteem		x		x	x	
Establish personal goals		x			x	
Work toward advancement					x	x
Recognize career options		x			x	
Leadership Skills						
Organizational effectiveness	x	x	x	x	x	x
Employability Skills						
Demonstrate punctuality			x	x		
Maintain work habits		x		x		
Practice a healthy lifestyle			x	x		
Take pride in work				x		
Have knowledge of company	x			x	x	x
Maintain quality standards		x	x	x		x
Technological Systems Skills						

Strategic Marketing
Table 8
Matrix for Workforce Skills and Marketing Education Course No. 6626 (Strategic Marketing)

	6626 A	6626 B	6626 C	6626 D	6626 E	6626 F	6626 G	6626 H	6626 I	6626 J	6626 K	6626 L
Strategic Marketing 6626												
Reading, Writing, & Math												
Read newspaper	x	x		x	x	x			x	x		
Understand job-related words	x	x		x	x	x		x	x	x	x	x
Perform simple math functions	x	x	x				x	x			x	x
Communication Skills												
Listen to presentations	x	x	x			x			x			x
Follow instructions	x	x		x	x	x	x		x		x	x
Give clear directions	x	x		x					x			
Speak in clear sentences	x	x		x	x	x			x			x
Critical Thinking Skills												
Troubleshoot problems		x	x	x	x	x	x		x		x	
Understand problem-solving	x		x		x						x	
Make independent decisions	x	x		x	x							
Group Interaction Skills												
Work well with colleagues		x						x		x	x	
Work well with supervisors		x			x	x				x	x	
Work well as a team-member	x	x						x		x		
Recognize cultural diversity			x	x	x			x				
Recognize gender equality			x	x	x			x				
Participate in group discussion		x										
Respect other opinions				x				x				
Willing to ask questions	x		x					x		x		
Personal Development Skills												
Exhibit self-esteem	x	x						x	x	x		
Establish personal goals			x						x	x		
Work toward advancement		x	x						x	x		
Recognize career options			x	x		x			x	x		
Leadership Skills												
Organizational effectiveness	x	x	x		x	x	x	x		x		
Employability Skills												
Demonstrate punctuality			x							x	x	x
Maintain work habits	x	x									x	
Practice a healthy lifestyle			x				x				x	
Take pride in work	x										x	
Have knowledge of company	x	x		x	x	x		x	x	x	x	x
Maintain quality standards		x		x		x		x	x	x		x
Technological Systems Skills												
Select proper equipment for task	x		x	x		x	x	x	x	x	x	x

Discussion

Reading, Writing, and Math

When the skills identified by Mobley (1998) that employers indicated were required for entry-level employment upon graduation from high school were compared to the North Carolina Marketing Education Standard Course of Study, the following reading, writing, and math skills—(1) understand job-related words, (2) reading newspapers, and (3) comprehending simple math functions—were included in the course of study. Based upon the data collected within this study, the North Carolina Marketing Education Standard Course of Study is addressing skills needed for success in the workforce.

Communication Skills

Business leaders also indicated high school graduates who directly enter the workforce possess efficient communication skills to speak in clear sentences, follow instruction, give clear directions, and listen to presentations. Employers deem communication skills important for entry-level success in the workforce. High school graduates should possess communication skills to develop a bond between co-workers—consequently, teamwork develops. As mentioned earlier, almost 80% of people who fail at work do not relate well with others. Thus, communication skills are and should be in the North Carolina Marketing Education Standard Course of Study.

Critical Thinking Skills

When the skills identified by Mobley (1998) that employers indicated were required for entry-level employment upon graduation from high school were compared to the North Carolina Marketing Education Standard Course of Study, the following critical thinking skills were not included in the course of study. The critical thinking skills not covered were: (1) troubleshoot problems, (2) understand problem solving, and (3) make independent decisions. Based upon the data collected within this study, the North Carolina Marketing Education Standard Course of Study is not addressing skills needed for success in the workforce.

Based upon the data collected, a clear pattern could be ascertained regarding the status of inclusion or non-inclusion of the skills identified by Mobley (1998) that were required by employers for entry-level employment upon graduation from high school in the North Carolina Marketing Education Standard Course of Study. Thus, there is little likelihood that the skills identified by employers as being required for entry-level employment were not being taught by marketing educators. Therefore, the null hypothesis—A significant difference will not exist in the skills identified by selected North Carolina employers required for entry-level employment and the North Carolina Marketing Education curriculum as mandated by the North Carolina Marketing Education Standard Course of Study—was rejected. As a result, the skills required for entry-level employment were not a major component of the North Carolina Marketing Education Standard Course of Study.

Conclusion

Numerous high school graduates across the country are entering the workforce lacking the necessary skills to succeed. Apparently, a lack of understanding is present between workforce preparedness educators and employers across the state of what should be taught in high school. Thus, collaboration must occur between marketing educators and business leaders to design a Marketing Education Standard Course of Study that addresses the needs of business and industry.

Regardless of whether or not workforce educators and business leaders will use studies such as these to collaborate in building workforce preparedness programs, it is important for educators to research its use as they would for any new information regarding improving education programs. Further, all educators and business leaders should become aware of how workforce preparedness programs enhance a student's ability to succeed, not only in the workplace, but also in life, itself.

As America moves into the 21st Century, today's workforce will be quite different from tomorrow's workforce. The impact of low productivity, skilled and unskilled workers, and changing workplace demographics will continue to be felt throughout America's economy. Thus, America's educational community will be in a good position to positively affect tomorrow's workforce. According to the literature review, business and industry will need problem-solvers, critical thinkers, cooperative and responsible workers, and highly skilled, multi-talented employees (Stitt-Gohdes, 1996). Therefore, workforce development education must provide educational opportunities that will prepare students for tomorrow's workplace. In order to provide these educational opportunities, workforce development educators will need to understand what skills business and industry require for entry-level employment as well as which of those skills required for entry-level employment are currently in the North Carolina Marketing Education Standard Course of Study. After all, today's students will become tomorrow's workforce. In order to be gainfully employed, those students will need specific workplace skills to be successful in the 21st Century.

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Computer Competencies Needed for Entry-Level Employment

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Abstract

The purpose of this study was to identify the skills needed to acquire entry-level business-related positions. The study included interviews with corporate employers in manufacturing, banking, and insurance. Although the study attempted to identify specific computer-related skills, this task was found to be unrealistic. However, the study did identify the following three commonalties among the participants: software competencies used for day-to-day tasks, transferability of basic skills, and usage of technology-enabled communications.

Introduction

Although the cost of new computers have steadily fallen over the past twenty years, the costs associated with training and retraining staff to use this equipment have increased. These increases in training costs have occurred for two reasons. First, the costs associated with education have risen. Educational institutions and training centers must stay on the cutting edge and have a greater abundance of equipment and software necessary to teach staff and students the skills necessary for employment today. Second, today's employees are expected to be computer literate and to accomplish specific tasks. In order to accomplish these tasks, they must be trained properly.

The U.S. Department of Labor Secretary's Commission on achieving Necessary Skills (SCANS) [1992] listed five workplace competencies and three foundation skills needed by employees at all levels. Included in these workplace competencies were Information (which includes acquiring and evaluating data, organizing and maintaining files, and using computers to process information) and Technology (which includes applying technology to specific tasks). Workers who are well prepared will allow the employer to reduce training time, reduce training costs, and increase overall productivity of the organization.

The increase in training expenses may result in employers requiring software-specific skills when hiring a new employee. A study by Office Team concluded 70 percent of managers surveyed identified the importance of an applicant possessing specific skills in software used by the company with whom they are applying (Anonymous, 1994).

In 1997, the Human Performance Practices Survey (HPPS) was conducted to determine the training practices and expenditures from 540 organizations. The survey was conducted as a joint effort of the American Society for Training and Development (ASTD), Times-Mirror Training Group, Development Dimensions International, the Forum Corporation, and the U.S. Department of Labor (Bassie and Van Buren, 1998). The survey results concluded that $504 per employee was spent on training in a typical private-sector organization with 50 or more employees. The expenditures were divided as follows: 39.6 percent spent on trainers' wages and salaries, 27.3 percent spent on outside payments to training companies and trainers, 13.9 spent on tuition reimbursement, and 21.9 spent on other expenditures (Bassie and Van Buren, 1998).

The HPPS survey also reported an average of 68.7 percent of employees received training. Computer literacy and applications training were offered by 91 percent of the survey participants. Job-specific technical skills and computer skills received approximately 25 percent of all training time (Bassie and Van Buren, 1998).

The HPPS survey results concluded that a "solid relationship does exist between a company's performance and its workplace learning and development practices" (Bassie and Van Buren, p. 42, 1998). Of the 540 organizations participating in the survey, 61.5 percent reported an increase of training expenditures during 1996 while 57.7 percent expected an increase of training expenditures in 1997 (Bassie and Van Buren, 1998).

Purpose of the Study

Business educators must work with business and industry to determine the skills needed by students entering the workplace. By hiring employees possessing needed skills, organizations will be able to reduce training expenditures and increase overall productivity. Determining the needs of organizations should be a priority of all educational institutions and programs.

The study addressed the following questions:

1. What software do businesses use for completion of day-to-day tasks?
2. What transferable skills do employers hope new employees possess upon hiring?

3. What technology-enabled communication are businesses expecting new employees to use?

Methodology

A sample of businesses indicative of the central Kentucky economy was used. Face-to-face interviews were conducted with human resources managers from two major manufacturers, an independent banking institution, and a small insurance company. A list of 15 questions was prepared and used in all interviews. The participants were given the flexibility to discuss additional topics. The interviews were recorded, transcribed, and analyzed for similarities and differences.

Two major manufacturers and employers were included in the sample. LexMark employs 6,000 employees from many of the surrounding communities. The mission of this company is "Customers for Life." Toyota employs 7800 employees also from many surrounding communities. The mission of this company is to "build a high-quality vehicle that is very competitive on the marketplace today."

Central Bank is an independent banking institution employing approximately 280 employees. The mission of this company is to be "a high performance sales marketer of a financial services institution providing the best possible quality service to our customers." Greater Lexington Insurance employs under 10 employees and provides insurance coverage to many area businesses.

Findings

Although a list of software packages and the specific skills graduates should possess were expected, it was determined that the employers were approaching the problem from a different angle. Employers are concerned with the graduate's ability to fit into the environment and to learn new tasks. Over the course of the interviews, three areas emerged that represented commonalties among the participants. These commonalties include the use of a variety of application software packages to accomplish daily tasks, transferability of skills, and growth in the use of technology-enabled communication skills and software. These specific areas are discussed in the following sections of this paper.

Daily Tasks

All company participants in the study use software to accomplish a variety of daily tasks including numeric manipulation, financial reporting, and document preparation. However, a variety of software packages were used to perform these tasks.

The small business that has a technologically aggressive manager may be the most likely company to operating with cutting-edge technology. Greater Lexington Insurance was the only participant in the study to discuss the use of digital imaging and document scanning. Furthermore, they were the only participant to indicate the use of the latest Microsoft (Windows 98) operating system. However, at Greater Lexington Windows 98 was only being used on the manager's system and had not yet been implemented company-wide.

Intellectual capital, budgetary control, and operational freedom may be the factors that contribute to Greater Lexington's ability to adopt advanced technology prior to the other companies interviewed during this study. Because Greater Lexington Insurance has a manager who enjoys experimenting with new technology and equipment, they possess the in-house intellectual capital necessary to implement appropriate new technology in their day-to-day operation. The size of Greater Lexington permits new technology to be added, or upgrading existing technology, without tremendous advanced planning. Costs associated with upgrading an operating system for such a company could range from $300 to $500. Furthermore, the autocratic nature of many small businesses eliminates the need to go through a long approval and adoption process.

Although each participant did discuss the use of Microsoft Office 97, it had not been fully standardized in all companies. In many cases Microsoft Office 97 was used intermittently throughout the company, and in most cases Microsoft Office 97 will never be fully integrated. Both Greater Lexington Insurance and Central Bank used industry-specific software for the majority of their day-to-day tasks. This was largely as a result of the need for compatibility with companies that they do business with.

Jerry Kroggel (manager of Greater Lexington insurance) indicated, "As far as support staff use goes, it's entirely an insurance-based software package that was written years ago by Rob Thompson when he developed a company called Redshaw." Redshaw has been purchased by Delphi and is currently available in the seventh revision. This system fulfilled all of the file management and database needs of the company. In addition, the Redshaw system provides word processing capabilities that integrated the client's address and account information as well as provide internal documentation in the client's record management system. This internal documentation helps employees at Greater Lexington Insurance easily locate correspondence. Mr. Kroggel indicated the office did have one copy of Microsoft Office 97 that he used when preparing many financial reports.

Central Bank also used industry-specific software provided by Marshall and Islay, their service bureau. The primary software package used by their tellers was called PC-Teller. Central Bank also had software that created forms and documentation associated with setting up new accounts. In addition to the industry-specific software used by Central Bank, on the operations side of the business they supported a Local Area Network (LAN) which offered WordPerfect 6.1 for word processing, and Quattro Pro spreadsheets for financial and numeric manipulation. Central Bank has maintained a strong relationship with WordPerfect products, and it appears that any future upgrades will include the Word Perfect label. However, the Central Bank Trust Corporation, a completely separate legal entity that shares the Central Bank name and many clients, does exclusively use Microsoft Office 97 products.

LexMark employees indicated they were currently using the Lotus Suite of products to accomplish daily tasks. However, they currently have many individuals using portions of Microsoft Office 97 and do plan to convert most of the facility in the near future. The accounting department at LexMark is using A.G. Edwards, a task-specific software package, and plans a conversion to People Soft in the next year.

Almost without exception Toyota Employees used Microsoft Office 97 for their daily tasks. However, Scott Roach indicated:

> We have just converted over to a new human resources database that is called People Soft... So depending on what section the person is hired in, certainly People Soft experience would be helpful, but I don=t believe that type of system would be taught in the school..

This conversion will take Toyota approximately three years and represents a tremendous financial investment for Toyota.

Transferability of Skills

All of the participants in the study were reluctant to provide a list of computer-related skills needed and indicated they were more concerned about corporate fit than specific skills. However, these employers expect new employees to bring basic computer skills to the job just as they expect basic English speaking skills. It quickly became apparent the way to get a job was to have a job. Prior experience was very important. Central Bank indicated they do not have a single position in their organization that does not require some previous work experience. Jerry Kroggel of Greater Lexington Insurance was more concerned about insurance specific knowledge than other related office skills. Toyota and LexMark indicated they were making a strong effort to acquire new employees through their co-op and intern programs.

Central Bank does test very basic skills like keyboarding and 10-key calculator skills. Although such testing may appear somewhat dated, Central Bank's explanation strongly supported the use of testing and the importance of measuring such skills. Laurie Cunningham indicated that Central Bank often looks for a keyboarding rate of 40 to 50 words per minute for an administrative assistant position. Although this is may seem reasonable, Ms. Cunningham stated:

> I will tell you that it's a struggle for a lot of folks... a lot of people who have a lot of computer background come in here, but you can tell they've never been taught the keyboard. They hack. So, when it comes to taking an actual typing test, and that's part of the computer-based testing. They really struggle with it because they are self- taught hackers rather than actual typists. Although many people know 6 or 7 software packages they struggle with them when asked to produce a document in a timely manner, and that comes out in the testing.

Jerry Kroggel also addressed keyboarding skills by stating the following:

> Obviously if they have had a keyboarding class as opposed to a Microsoft Word class, those kind of things carry over. The keystrokes students learn for Windows won't carry over because our system is a Unix based program...Insurance knowledge is more important. If a person comes from any other automated agency, and has used any other automated insurance specific software, they can be easily trained on our system.

At LexMark each manager evaluates the skill level of the potential employee during the interview. However, Bill Spears indicated experience with software categories such as spreadsheets or databases may be more important than having used a specific package because packages change. Often by the time a student graduates from college, the software packages they have learned may have gone through many revisions.

Scott Roach indicated flexibility was probably the most critical component necessary for a person to be successful at Toyota. He added:

> We need somebody that's flexible, somebody that can adapt to change, multi task, when I say that I'm talking about working on several major tasks at the same time. All employees must be able to work with people from all levels throughout the plant. Many things can be taught or trained, but I believe flexibility is difficult to teach.

Toyota strongly encourages cross-training and supports staff development by offering a core of in-house classes. In addition,Toyota employees have the opportunity to attend two out of house training activities per year. Furthermore, they are also willing to support on-the-job training for people who are interested in other functional areas of the operations.

Technology-Enabled Communications

Among those companies included in the study, Toyota was the clear leader in the use of technology-enabled communications. Toyota has an intranet, which currently uses Hyper Text Markup Language (HTML) throughout many departments in the organization. Recently they have started to place job postings on the World Wide Web (WWW). Scott Roach indicated:

> It's amazing how powerful the Internet is. Through our co-op program, we put out what we call a housing packet or housing information on the Web. This system allows students to pull up a roommate list, and they can pull up apartment information in the local area. That's been very helpful to us. We also use e-mail and have found it is the best way to communicate with college students. Using e-mail has helped us avoided problems

> that existed when we had to play telephone tag and leave messages. We also do a lot of e-mailing back and forth to all of our affiliates, especially with the Indiana and West Virginia facilities.

Although LexMark indicated they were not using the World Wide Web as extensively as Toyota, future plans suggest they may soon exceed Toyota's use. Susan Keene stated that like Toyota, LexMark is currently placing job postings on the internet, but she envisions LexMark may one day have personnel forms available online. Bill Spears added:

> . . . as we get more involved in the inter and intranet, each of the various departments are going to have to be developing their own pages. The IS (Information Systems) staff won't have the time needed on a daily basis to do such updates. Therefore, I think HTML knowledge would be a very good skill for a graduate to have.

LexMark is currently receiving many resumes as e-mail attachments. However, these attachments are often being sent as Microsoft Word or WordPerfect documents. Bill Spears finds this frustrating because he does not currently have the ability to easily read these attachments on his workstation. Mr. Spears recommended when sending a resume via the World Wide Web candidates should include multiple formats or simply integrate the text in the e-mail to ensure the recipient can quickly evaluate the candidate's skills. LexMark has also found e-mail is one of the best ways to communicate with college students and potential job candidates. Lola Humphry suggested that about 40 percent of the new resumes LexMark receives do include e-mail addresses; however, they would like to see that number grow.

Both Greater Lexington and Central Bank do have programs that involved such communications. Jerry Kroggel of Greater Lexington indicated: "We have the beginning stages of an agency homepage." He indicated Greater Lexington was currently using the World Wide Web for marketing purposes. In addition he currently received an HTML based CD-ROM every month from an Insurance Management Marketing program that would soon be available online. When asked if he envisioned the use of an HTML browser based office communication system, Mr. Kroggel indicated:

> I can yell and everybody in the office can hear me. Because of the size of our office, I don't think it's necessary right now. However, we are thinking about placing office manuals on the system in Microsoft Word format so they can be viewed from any of the work stations.

Mr. Kroggel also admitted that currently the primary use of the Internet access in the office was so he and the other active agents in the office could get fishing guides and reports.

Central Bank's use of the World Wide Web included a homepage that was administrated by the Marketing department. This homepage included basic banking and product information. Although some employees at Central Bank do have access to the World Wide Web, most employees simply need to be concentrating on the job at hand and do not need World Wide Web access to assist them. The nature of the banking industry also requires closed networks that offer greater security. Perhaps this is why Central Bank's new e-mail environment is also internally-based.

Conclusions and Implications

Educational institutions must maintain a balance between occupational competencies and educational activities that are designed to enhance the total person. The Prichard Committee on Higher Education identified this as early as October 1981 in their report entitled *The Pursuit of Excellence*.

> The provision of occupational competence alone does not suffice as a higher education, but higher education is not complete without the provision of a basis for attaining occupational competence. These two central purposes are in harmony when higher education of high quality is provided. However, such harmony may be threatened when short-range economic conditions encourage higher education to emphasize narrow occupational training. This tendency should be avoided. The future will demand that workers and citizens have breadth of knowledge and be adaptable, rather than have narrow skills. (Prichard, p. 19)

Although this study attempted to identify a set of specific skills needed for entry-level employment, employers who participated in the study suggested this goal may be unrealistic if not impossible due to the diverse nature of their industry's needs. However, flexibility and depth and breadth of knowledge gained from past experience may prove more valuable when selecting entry-level employees.

The following four findings emerged from the commonalties which existed among the participants in the study.

1. Business educators should be advocates of teaching concepts rather than teaching specific and perishable skills.
2. Students need additional exposure to concepts concerning graphics presentation technology and technology enabled communications.
3. Business educators need to continue to place emphasis on flexibility as well as transferability of skills and knowledge in addition to the competencies identified by the SCANS Report and addressed in the National Business Education Association's Yearbook (Number 30), *The Hidden Curriculum*.
4. A set of skills needed by all employers in a geographic area may not be attainable. However, such a list of skills may be compiled by individual industries.

Future studies may include expanding the base of industries that participated in the study. In addition, future studies may also wish to explore competencies needed in specific industries.

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Computer Hardware and Software Training Needs for Office Employees of Manufacturing Firms in Pitt County, North Carolina

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Abstract

The purpose of this study was to examine computer hardware and software, time, and costs involved in formal computer hardware and software training for manufacturing firms in Pitt County, North Carolina. A survey research design was used for the study, and the survey was mailed to 140 manufacturing firms. The Chi Square Test of Independence was used to test the null hypothesis, and the hypothesis was not accepted. Thus, respondents indicated that there was a need for formal computer hardware and software training in manufacturing firms operating in Pitt County, North Carolina.

Introduction

The increase in international competition, new technologies such as information technology, and changing work organization have contributed to a growing debate in the United States of America about the ways in which workers accumulate skills relevant to the rapidly developing workplace. In the United States, employers have historically relied on formal school-based education followed by informal learning by performing on the job. The primary reason employers relied on school-based education followed by informal learning was to obtain the necessary level of human resources required by their specific production technologies (Bishop, 1994). Presently, this approach does not appear to be as successful in satisfying the human resource needs of employers as in the past (Kaupins, 1997). Employers today are looking for workers who have a broader and deeper education than in the past (Carnevale, 1990) so that employees can adjust to the changing skills' requirements. These requirements are associated with new and ever-changing technologies and workplace practices such as just-in-time production, job rotation, and cross-training. Skills such as computer hardware and software usage are not easily learned through informal, on-the-job training (Benton, 1991). Hence, the issue of formal computer hardware and software training deserved consideration.

Need for the Study

Although the skill needs of employers have changed, the reserves of employees in the United States does not appear to be delivering a sufficient supply of workers with high levels of skill (American Association of Community Colleges, 1993). Reduction in the number of workers available for employers was evident by the larger salaries being paid for those with more education and skills (Carnevale, 1995). In other words, there is a potential failure of business and education in the provision of more overall training evident by the large numbers of low wage and untrained workers in America today (Carnevale, 1995). Possible reasons for this market failure included the presence of large, fixed components in training costs that make training more expensive for smaller firms than for larger firms (Bishop, 1994). In addition, there may be high employee turnover and employers are not able to recoup their training investment (Benton, 1991). Therefore, the issue and need for training in the United States is ever present and required addressing.

Statement of the Problem

The purpose of the study is to examine computer hardware and software, time, and costs involved in formal computer hardware and software training for all manufacturing firms in Pitt County, North Carolina. The focus of the study was to identify the employer's need for formal computer hardware and software training. Formal computer hardware and software training, as defined and used in this research, referred to training provided through a focused computer hardware and software training provider or vendor to address the specific training needs of the business or manufacturer. Therefore, by addressing the training needs of the business or manufacturer, the office worker was directly affected.

Office workers comprise a majority of the workforce in the United States, and office worker's numbers are projected to increase to 40% of the workforce by the year 2000 (U. S. Department of Labor, 1996). Office workers are the group whose lives are expected to be transformed by the technology-driven workplace. However, many workers, including office workers already in the workforce, do not demonstrate the skills needed for a competitive and constantly changing business market (Bishop, 1994). Thus, employers are looking for ways to provide basic and advanced computer skills and training for their employees. However, training and development were seen as non-essentials in a business society that measures success by doing more with less (Carnevale, 1995). Therefore, with pressures from cost cutting to technology advances, firms needed employees who are trained not only for current technology but also ever increasing advances in technology.

Hypothesis

The following hypothesis was tested: A significant difference will not exist in the computer hardware and software training needs for manufacturing firms operating in Pitt County, North Carolina.

Review Of The Literature

The importance of employee training for building a skilled workforce and increasing productivity has been stressed by professionals since the turn of the twentieth century. However, the literature on the use of training in the United States was scattered and presented conflicting views. Despite the varying view, United States of America's firms provided considerably less formal training than do their Japanese and German counterparts (Office of Technology Assessment, 1990). Currently, deficiencies exist in our secondary educational system that make it more difficult to train current graduates who are now entering or are projected to enter the workforce (Brown & Reich, 1997; Filipczak, 1993; Hayajneh, Uden, & Kedia, 1994). The American secondary education system has no method to deliver individuals trained to the specific skills needed in organizations (Amin & Hagen, 1998; Filipczak, 1993; Hayajneh, Uden, & Kedia, 1994). With no such method in our educational system, the United States was placed at a disadvantage in global competition with countries such as Japan and Germany who have such an educational system in place.

In the current economic status of many American organizations, many felt compelled often to reduce training commitments in order to maintain financial budgets. Statistics revealed that U. S. companies invested approximately 1.5 percent of payroll in training while Japanese and European companies spent three to five times as much for employee training (Amin & Hagen, 1998; Labor letter, 1993). And to confound this situation, of the 1.5 percent of payrolls invested in training in the U. S., only 10 percent of the workforce was reached with formal training (Amin & Hagen, 1998). Formal training must become a way of life for successful organizations (Office of Technology Assessment, 1990). Both employer and employee benefit from training. Most employees had a great capacity for training and education that was never tapped (Marshall & Tucker, 1992). And training provided the material to build a personal resume which increased an employee's value in the organization, built self-image, and provided a measure of personal security (Goldstein, 1993).

Mounting evidence indicated that a growing share of office employees were either not trained or under trained (Carnevale, Gainer, & Meltzer, 1990; Frazis, Herz, & Horrigan, 1995). However, with today's information-based technology increasing the skill requirements and importance of office employees (Carnevale, Gainer, & Meltzer, 1990; Office of Technology Assessment, 1990), more office personnel must have qualifying training and upgrading. Therefore, more in-depth outside training, usually in the form of seminars, is needed (Office of Technology Assessment, 1990) in order to provide the skills required to face the challenge of global competition.

Instrumentation

The survey instrument consisted of fifteen questions. Questions one and two were to obtain demographic information about the firm. Questions three and four asked for information corresponding to professional development. Questions five through twelve concentrated on when and where training was conducted and how much time and money was spent on formal training. Question thirteen asked why there was no need for training if the firm had no need for training or to provide training. Question fourteen asked if the firm was satisfied with their current training. The final question, fifteen, asked if more training was needed on computer hardware and software items. The answers were divided in two groups; hardware and software. In each group, hardware and software, subgroups were formed relating to the group heading. One subgroup titled "other" was utilized in order to obtain information on hardware or software that was not listed and unique to a particular firm. Content validity was obtained by using a panel of experts to assess the validity. The survey was revised based upon their comments.

Pilot Study

A pilot study was conducted in two college classrooms at East Carolina University. Both graduate classes were chosen from the Department of Business, Vocational, and Technical Education to test the questionnaire. Each student received a questionnaire with a cover letter attached. Students were asked to read the cover letter, complete the survey, and answer each question as it applied to their particular situation or work position. Once the students had completed the survey, all the students were asked for comments on the cover letter and instrument, as well as suggestions for improvement. The students made suggestions for change, particularly in the wording of some of the questionnaire items and the order of the questionnaire items. The survey was revised according to their suggestions.

All data collected from the two graduate classes were compiled in order to estimate internal consistency of the questionnaire. Cronbach's alpha was used to estimate the internal consistency reliability coefficient. A reliability analysis was performed by utilizing the Statistical Package for Social Sciences. Alpha was determined from the data collected in the pilot study and was, a = 7602.

Participants

This study examined the perceived need for training office employees to use current computer hardware and software in manufacturing firms in Pitt County, North Carolina. Information needed to conduct this study, such as address, name of contact, telephone numbers, and number of employees was assessable and complete on manufacturing firms in North Carolina through manufacturing trade publication manuals. The necessary information was obtained from two sources, the *1997 North Carolina Manufacturers Directory* and the *1996 North Carolina Manufacturers Register*. All manufacturing firms in Pitt County, North Carolina, were chosen for the study due to the adjoining proximity to East Carolina University and the time constraints. Therefore, all manufacturing firms within Pitt County, North Carolina, were specified as participants in the study.

Data Collection

The survey was mailed to all 140 manufacturing firms listed in the *1997 North Carolina Manufacturers Directory* and the *1996 North Carolina Manufacturers Register* with a cover letter from the researcher and a return envelope. Approximately two weeks after the survey was mailed, a follow-up post card was mailed to firms who had not responded by that time. For each survey that was returned as undeliverable, a check was made to see if that firm had moved within the county, closed or out of business, or the wrong address was obtained. Another instrument was mailed if the firm had moved and was located within Pitt County, North Carolina. After the third week from the initial mailing, phone calls were made to all manufacturing firms that had not responded to the survey for a final request. If the manufacturing firm had not received a survey or lost the survey, another survey was faxed to their location. Completed surveys were received from 46 firms reflecting a 32.9 percent return rate. This excludes one survey that was unusable and nine surveys that were returned undeliverable. There were three surveys not returned due to duplication error by the researcher. Questionnaires were mailed to each of the presidents or human resource managers of all the manufacturing firms in Pitt County, North Carolina. Of the 140 firms that received a questionnaire, 46 responded for an overall response rate of 32.9 percent. This return rate is considered acceptable because it compares favorable with other studies of this type. For example, in a survey conducted by the Commission on the Future of the North Carolina Community College System (1989) of 1200 business and industry leaders in North Carolina had a return rate of 31 percent. Also, in a survey conducted by Department of Community Colleges, Raleigh, North Carolina, of 1200 business and industry leaders in North Carolina had a return rate of 31 percent (Wilms, 1993). And finally, in two surveys of oil-related manufacturing businesses in the Midland area of Texas conducted by Midland College and the Midland Chamber of Commerce, the percentages of returns were 35 percent and 30.2 percent, respectively (McCarty, 1990).

Statistical Analysis

Data from the returned survey instruments were entered into a spreadsheet. Tables were used to describe data and to aid in checking whether the assumptions required for the inferential statistics that were used were satisfied. Frequency distribution tables were used to list categories of possible values for variables, together with a tabulation of the number of observations in each category. Relative frequencies for categories were calculated to determine the proportion of the total set of observations in those categories. A chi square analysis was used to determine if a significant difference exists and to test the hypothesis. A chi square test compares proportions actually observed in the study with proportions expected, to see if the proportions were significantly different (Gay, 1992). The chi square value increased as the difference between observed and expected frequencies increased. Therefore, a chi square analysis was used in order to determine if significant differences existed in responses to items on the survey which established whether there were computer hardware and software training needs for manufacturing firms in Pitt County, North Carolina.

Demographics

When analyzing by size, 54.3 percent of the responses came from firms employing 50 or fewer employees. Firms with 51-100 employees accounted for 17.4 percent of the total 46 responses. Finally, firms with 101 or more employees accounted for 28.3 percent of the total 46 responses (See Table 1).

Table 1
Frequency Distribution of Number of Employees Employed by Firm (Survey Question 1)

Response	Frequency	Percent
1-50	25	54.3
51-100	8	17.4
101 or more	13	28.3
Total	46	100.0

Although all the firms were classified as manufacturing firms according to the *1997 North Carolina Manufacturers Directory* and the *1996 North Carolina Manufacturers Register*, respondents were asked what type of product or service was manufactured (See Table 2). Of the 46 respondents, 47.8 percent considered their primary function as manufacturing. Other responses, which totaled 17.4 percent were lumber milling, communications, concrete production, furniture repair, box manufacturing, screen printing, print shop, and food processing.

Table 2
Frequency Distribution of Product or Service Provided by Business (Survey Question 2)

Response	Frequency	Percent
Agriculture	7	5.2
Construction	2	4.3
Manufacturing	22	47.8
Media, Video, Graphic Arts	3	6.5
Retail Trade	3	6.5
Medical, Health-related	1	2.2
Other	8	17.4
Total	46	100.0

Support for Professional Development

For question 3, "Does your company support professional development to improve or enhance employee skills?," 69.6 percent of the firms responding to the survey indicated that the respondent did support professional development to improve or enhance employee skills (See Table 3). When comparing the actual response to the expected response, the results of chi square analysis yielded a probability level of 0.0079 (See Table 3), which was significant at a priori alpha level of .05. Therefore, the company support of professional development to improve or enhance employee skills was of significant difference among the firms responding to the survey. The difference was within the "Yes" responses (69.6 percent), which indicated a majority of the firms supports professional development.

Table 3
Frequency Distribution and Chi Square Analysis of Whether Firm Supports Professional Development (Survey Question 3)

Response	Frequency	Percent
Yes	32	69.6
No	14	30.4
Total	46	100.0

χ^2 (1, $\underline{N}$ = 46) = 0.0079, $\underline{p} > .05$

For question 4, "What does your company use as a means to encourage professional development?", 26.2 percent of the firms responding to the survey indicated that release time was a means to encourage professional development, 52.4 percent indicated tuition or book reimbursement was a means to encourage professional development, and 21.4 percent responded with other choices. (See Table 4). When comparing the actual response to the expected response, the results of chi square analysis yielded a probability level of 7.7055 (See Table 4), which was not significant at *a priori* alpha level of .05. Therefore, what companies use as a means to encourage professional development was not of significant difference among the firms responding to the survey. Thus, there was no significant difference among the responses given by the respondents.

In response to question 4, the majority of the respondents choice (52.4 percent) was tuition or book reimbursement to encourage professional development (See Table 4). Also, no one respondent chose child-care as a means to encourage professional development. Respondents had a choice of answering one or more choices. Respondents listed other choices as send employees to workshops or seminars, certification classes, on-site skills training by Pitt Community College, offer cash to employees who attend classes at local schools, and on-the-job training.

Table 4
Frequency Distribution and Chi Square Analysis of What Firms Utilize to Encourage Professional Development (Survey Question 4, Multiple Responses)

Response	Frequency	Percent
Release time	11	6.2
Tuition/books reimbursement	22	52.4
Other	9	21.4
Total	42	100.0

χ^2 (3, $\underline{N}$ = 46) = 7.7055, $\underline{p} < .05$

Table 5 reported the percentages regarding the site or sites used for all employee training. This would include not only training for office employees but all employees in the manufacturing firm. On-the-job training as the site used for all employee training was indicated by 35.7 percent of the respondents. Other choices were trade schools, various seminars, national associations, in-house classroom training, sister plant in North Carolina, and consultants.

Table 5
Frequency Distribution of Site Used for all Employee Training (Survey Question 5, Multiple Responses)

Response	Frequency	Percent
On-the-job training	40	35.7
Community college	23	20.5
College/university	18	16.1
Corporate/vendor training programs	23	20.5
Other resources	8	7.2
Total	112	100.0

Formal Training

Table 6 summarized the responses to survey question 6, "Is there a need to provide formal computer hardware and software training (workshops, seminars, classes, etc.) for your office employees?" (See Table 6). For question 6, 69.6 percent of the firms responding to the survey indicated that there was a need to provide formal computer hardware and software training for office employees (See Table 6). When comparing the actual response to the expected response, the results of chi square analysis yielded a probability level of 0.0079 (See Table 6), which was significant at *a priori* alpha level of .05. Therefore, the need to provide formal computer hardware and software training for office employees was of significant difference among the firms responding to the survey. The difference was within the "Yes" responses (69.6 percent), which indicated a majority of the firms feel there is a need for formal training in their firm.

Table 6

Frequency Distribution and Chi Square Analysis of Whether A Need for Formal Training (Survey Question 6)

Response	Frequency	Percent
Yes	32	69.6
No	14	30.4
Total	46	100.0

χ^2 (1, $\underline{N}$ = 46) = 0.0079, $\underline{p}$ > .05

Table 7 indicates when employees are formally trained if the firm feels there is a need for formal training (See Table 7). Other arrangements indicated were as needed and self determination of need. Respondents had a choice of answering one or more choices for question 7. For question 7, when comparing the actual response to the expected response, the results of chi square analysis yielded a probability level of 1.0241 (See Table 7), which was not significant at *a priori* alpha level of .05. Therefore, when employees were formally trained and if a need for formal training existed for a specific job, there was not of significant difference among the firms responding.

Table 7

Frequency Distribution and Chi Square Analysis of When Employees are Formally Trained if There is A Need for Formal Training (Survey Question 7, Multiple Responses)

Response	Frequency	Percent
Orientation sessions for new employees	9	14.8
On the job, in the position	28	45.9
At supervisor's determination	10	16.4
Fixed amount of time during employment	3	4.9
Other arrangements	11	18.0
Total	61	100.0

χ^2 (4, $\underline{N}$ = 46) = 1.0241, $\underline{p}$ < .05

Table 8 summarizes the responses to the survey item of whether the firm provided the formal computer hardware and software training for the employees (See Table 8). For question 8, 78.1 percent of the firms responding to the survey indicated that the firm provided the formal computer hardware and software training for the employees (See Table 8). When comparing the actual response to the expected response, the results of chi square analysis yielded a probability level of 0.0007 (See Table 8), which was significant at *a priori* alpha level of .05. Therefore, whether the firm provides the formal computer hardware and software training for the employees was of significant difference among the firms responding to the survey. The difference was within the "Yes" responses (78.1 percent), which indicated a majority of the firms provided formal computer hardware and software training in their firm.

Table 8

Frequency Distribution and Chi Square Analysis of Whether Firm Provides Formal Computer Hardware and Software Training (Survey Question 8)

Response	Frequency	Percent
Yes	25	78.1
No	7	21.9
Total	32	100.0

χ^2 (1, $\underline{N}$ = 46) = 0.0007, $\underline{p}$ > .05

Table 9 indicates the location or locations firms used when employees are formally trained for computer software and hardware. Other responses to the question 9 were national association meetings, training centers, on-the-job, and computer reseller. For question 9, when comparing the actual response to the expected response, the results of chi square analysis yielded a probability level of 9.3775 (See Table 9), which was not significant at *a priori* alpha level of .05. Therefore, the location or locations where employees were formally trained when conducting classes for formal computer hardware and software training was not of significant difference among the firms responding to the survey. Thus, there was no significant difference among the responses given by the respondents.

Table 9

Frequency Distribution and Chi Square Analysis of Location(s) Where Employees are Formally Trained (Survey Question 9, Multiple Responses)

Response	Frequency	Percent
At your business site	21	38.9
At college or university	4	7.4
At corporate/vendor training facility	15	27.8
At community college	9	16.7
Other	5	9.2
Total	54	100.0

χ^2 (4, $\underline{N}$ = 46) = 9.3775, $\underline{p}$ < .05

Computer Hardware And Software Training

Table 10 indicates the number of hours on average that was spent in formal computer hardware and software training (See Table 10). The most frequent response was 11-20 hours (36.0 percent) followed by 5-10 hours (24.0 percent) of training.

Table 11 summarizes how often formal computer hardware and software training was provided for each employee. The majority of the responses (60.0 percent) were other responses (See Table 11). The other responses were as needed, depends upon

Table 10

Frequency Distribution of Hours Spent in Formal Computer Hardware and Software Training On Average (Survey Question 10)

Response	Frequency	Percent
Less than 5	5	20.0
5-10	6	24.0
11-20	9	36.0
21-50	1	4.0
51 or more	4	16.0
Total	25	100.0

type and/or usage of computer process, when new hardware and software are purchased, with each major upgrade, and when equipment is changed or updated. For question 11, when comparing the actual response to the expected response, the results of chi square analysis yielded a probability level of 4.9806 (See Table 11), which was not significant at *a priori* alpha level of .05. Therefore, how often formal computer hardware and software training was provided for each employee was not of significant difference among the firms responding to the survey. Thus, there was no significant difference among the responses given by the respondents.

Table 11

Frequency Distribution and Chi Square Analysis of How Often Formal Computer Hardware and Software Training Provided (Survey Question 11)

Response	Frequency	Percent
Only upon initial employment	4	16.0
Monthly	1	4.0
Yearly	5	20.0
Other	15	60.0
Total	25	100.0

χ^2 (4, N = 46) = 4.9806, $p < .05$

Table 12 summarized the responses to the question 12, how much was spent on formal computer hardware and software training last year on average. The response of 0 to $500 had the greatest response of 44.0 percent.

Table 12

Frequency Distribution of How Much is Spent on Formal Computer Hardware and Software Training (Survey Question 12)

Response	Frequency	Percent
0-$500	11	44.0
$501-$1,000	1	4.0
$1,001-$5,000	6	24.0
$5,001 or more	7	28.0
Total	25	100.0

No Need for Formal Training

Table 13 summarized the responses to question 13, why firms feel there was no need for formal training or why the firm does not provide training. The majority of responses were other at 58.7 percent (See Table 13) and included does not apply to our firm, in-house person does training, all computers are in home office at another location, expense of getting formal training, require employee to have high level of skill before hiring, and customized programs by owner of company. For question 13, when comparing the actual response to the expected response, the results of chi square analysis yielded a probability level of 0.0008 (See Table 13), which was significant at *a priori* alpha level of .05. Therefore, why firms feel there is no need for formal training or why the firm does not provide training was of significant difference among the firms responding to the survey. The difference was within the "Other" responses (58.7 percent). This difference was indicated by a majority of the firms which felt that does not apply to our firm, in-house person does training, all computers are in home office at another location, expense of getting formal training, require employee to have high level of skill before hiring, and customized programs by owner of company were the reasons why firms felt there was no need for formal training or why the firm does not provide training.

Table 13

Frequency Distribution and Chi Square Analysis of Why There is no Need for Formal Training or Why Firm Does Not Provide Training (Survey Question 13)

Response	Frequency	Percent
All employees are already sufficiently trained	12	26.1
Job not require skilled or trained employees	7	15.2
Other	27	58.7
Total	46	100.0

χ^2 (2, N = 46) = 0.0008, $p > .05$

Table 14 summarized the level of satisfaction with current training by respondents to the survey (See Table 14). For question 14, when comparing the actual response to the expected response, the results of chi square analysis yielded a probability level of 0.0008 (See Table 14), which was significant at *a priori* alpha level of .05. Therefore, the level of satisfaction with current training by all firms was of significant difference among the firms responding to the survey. The difference was within the "Could be improved" responses (43.5 percent), which indicated a majority of the firms felt the current level of training in their firm could be improved.

Table 14

Frequency Distribution and Chi Square Analysis of Satisfaction With Current Training (Survey Question 14)

Response	Frequency	Percent
Satisfied	16	34.8
Adequate	6	13.0
Could be improved	20	43.5
Dissatisfied	4	8.7
Total	46	100.0

χ^2 (3, $\underline{N}$ = 46) = 0.0013, $\underline{p} > .05$

More Training Needed

Table 15 summarized items indicated by respondents in which more computer hardware and software training was needed (See Table 15). Respondents had a choice of answering one or morechoices for question 15. The majority of the respondents indicated that firms needed more training for IBM or compatible computers. Also, the majority of firms that responded indicated that more training was needed for Microsoft Word, Excel, and Access.

Table 15

Frequency Distribution of Respondents Indicating They Need Additional Training in Types of Hardware or Software (Survey Question 15, Multiple Responses)

Computer	Frequency	Percent
IBM or Compatible	24	85.7
Macintosh	3	10.7
Other	1	3.6
Total	28	100.0

Printer	Frequency	Percent
Laser	13	34.2
Inkjet	12	31.6
Color	7	18.4
Dot Matrix	6	15.8
Total	38	100.0

Scanner	Frequency	Percent
Flatbed	12	66.7
Handheld	3	16.7
OCR Software (Xerox)	3	16.7
Total	18	100.0

Back Up	Frequency	Percent
Tape	13	52.0
Disk (Zip, Jaz)	11	44.0
Off-site	1	4.0
Total	25	100.0

Table 15 (Continued)

Table 15 (Continued)

Compact Disk	Frequency	Percent
Speed (2x, 4x, 8x, 16x, 20x, 24x)	9	75.0
Recordable	1	8.3
Digital Video Disk (DVD)	2	16.7
Total	12	100.0

Media	Frequency	Percent
Video Conferencing	5	31.2
LCD (Liquid Crystal Display) Connected to computer	2	12.5
Digital Camera	7	43.8
Digital Video	2	12.5
Total	16	100.0

Other Software or Hardware not Cited	Frequency	Percent
Photoshop	2	18.1
Quark	1	9.1
Microsoft Tools	1	9.1
Newing Hall	1	9.1
Epilogue Laser Printer	1	9.1
Microsoft Windows 95	1	9.1
Microsoft Project	1	9.1
Microsoft Powerpoint	1	9.1
Meistergram 900 XLC Embroidery Machine	1	9.1
cc:Mail	1	9.1
Total	11	100.0

Voice Recognition	Frequency	Percent
IBM Voice	1	100.0
Total	1	100.0

Video Conferencing	Frequency	Percent
Whitepine	1	25.0
CU-SeeMe	1	25.0
Microsoft NetMeeting	2	50.0
Total	4	100.0

Internet Access	Frequency	Percent
America On Line	1	7.7
EastNet	1	7.7
CostalNet	1	7.7
ScanTech	3	23.1
Internet Of Greenville	4	30.7
Intra Star I	1	7.7
Generic	1	7.7
UVNet	1	7.7
Total	13	100.0

Table 15 (Continued)

Table 15 (Continued)

Internet Browser Software	Frequency	Percent
Internet Explorer 4.x	8	40.0
Internet Explorer 3.x	4	20.0
Netscape 4.x	6	30.0
Netscape 3.x	2	10.0
Total	20	100.0

Integrated Software	Frequency	Percent
Microsoft Office	19	82.6
Microsoft Works	3	13.0
ClarisWorks Office	1	4.4
Total	23	100.0

Specific Software	Frequency	Percent
Microsoft Word	20	24.6
WordPerfect	4	4.8
Word Pro	1	1.2
MacWrite	1	1.2
Microsoft Excel	17	20.9
Lotus 123	5	6.1
Microsoft Access	13	16.0
Peachtree	1	1.2
QuickBooks	4	4.8
Harvard Graphics	1	1.2
PageMaker	4	4.8
Microsoft FrontPage	3	3.6
HomeSite	1	1.2
Microsoft Powerpoint	2	2.4
Coral Draw	1	1.2
Lotus Approach	1	1.2
Industry Specific	1	1.2
ClarisWorks	1	1.2
Quicken	1	1.2
Total	81	100.0

Testing of Hypothesis

To test the null hypothesis, *A significant difference will not exist in the computer hardware and software training needs for manufacturing firms operating in Pitt County, North Carolina,* the Chi Square Test of Independence was used to ascertain the probability of observed differences among manufacturing firms in Pitt County, North Carolina, regarding a need for formal computer hardware and software training for office employees. Questions 3, 6, 8, 13, and 14 were used to test the hypothesis. The remaining ten questions gave support to the need for formal computer hardware and software training. Responses to questions 4, 5, 7, 9, 10, 11, 12, and 15 indicated that firms were involved in some sort of training (69.6 percent). Questions 1 and 2 were used to obtain demographic information for the study.

When respondents were asked did their company support professional development to improve employee skills and was there a need to provide formal training, questions 3 and 6 received the same responses. With the same responses, both questions received the same results when the Chi Square Test of Independence was used to ascertain the probability of observed differences. The results of the Chi Square Test of Independence was of significant difference among the firms responding to the survey for questions 3 and 6. Also the results of questions 8, 13, and 14 confirmed a significant difference among the firms responding to the survey. Therefore, the null hypothesis was rejected at the *priori* alpha level of .05 based on data indicating there was less than a five percent chance that the observed differences in computer hardware and software training needs of manufacturing firms operating in Pitt County, North Carolina could have occurred by chance. Thus, respondents indicated that there was a need for formal computer hardware and software training in manufacturing firms operating in Pitt County, North Carolina.

Conclusions

The importance of a skilled workforce is essential in today's highly competitive business domain. Employers today are looking for workers who have a broader and deeper education than in the past so that employees can adjust to the changing skills' requirement. These requirements are associated with new and ever-changing technologies and workplace practices. With continual revisions and innovations to hardware and software, employees and employers must be trained in order to update their knowledge to effectively utilize the various software and hardware in the workplace.

Information-based technology increased the skill requirements and importance of office employees throughout the business world. Nearly all of today's office employees operate a computer for word processing or information processing. However, mounting evidence indicated that a portion of office employees were either not trained or under trained (Carnevale, Gainer, & Meltzer, 1990; Frazis, Herz, & Horrigan, 1995), since U. S. firms spend only 1.5 percent of their payroll on training (Labor Letter, 1993). Therefore, a need exists for businesses to examine their office employees and invest in training to meet the skill requirements that information-based technology has placed on business.

Employers must continue to train their employees in order to maintain a quality workforce. In order for the United States to compete in the current global marketplace, workers must recognize their potential by having the expertise to perform the job assigned through formal training. The current literature has shown that American companies do not invest in training as do the Japanese or European companies (Amin & Hagen, 1998) where training is an investment in human capital, not an expense. Only eleven to twenty hours was the average time spent in training for manufacturing firms in Pitt County for all employees, therefore indicating some training was being accomplished.

When respondents in the current study were asked where training was conducted and when employees were formally trained, a majority of the responses from the survey preferred training sites were on-the-job sites or at the employees' work location. A recent survey by the Bureau of Labor Statistics concurred with this study, showing nearly two-thirds of establishments surveyed considered on the job or in the position training as the first choice for location to train employees (Frazis, Herz, & Horrigan, 1995). One possible implication affecting the choice of on-the-job training is the cost compared to formal or contracted training. In this study and other studies (Frazis, Herz, & Horrigan, 1995), cost of training influenced businesses decision on how often and how much training was utilized. Therefore, this study and the literature showed a trend of training on the job as the preference among most businesses.

Recommendations

Based upon the experience in completing this study, the following recommendations were set forth:

1. In order to compare findings in the future, replicate this study. Increase the number of participants to all companies in Pitt County to strengthen the validity and generalizability of the data. Information drawn from a wider, larger sampling would make using more rigorous statistical procedures possible.
2. As stated earlier, this research attempted to add to the existing body of research. Expanded research should be performed in the area of formal training and specifically computer hardware and software training for office employees. Since computer hardware and software constantly changes and expands along with demands of office employees, research would provide evidence of the need for expanded formal training, changes since other studies, and how changes have affected employers and employees. A sampling of office employees from other types of businesses would give the research an expanded observation of training needs.
3. The literature is not clear on what "training" or "some form of training" really means. The researcher felt that as more research in training is conducted, "training" and "some form of training" can be clearly shown in terms of specific kinds of training, or training for what functions, or training on what specific equipment. Once a clear picture is drawn, the literature will become distinguishable and comparisons can be made and better understood in future research.
4. Further research should expand in greater detail to the effects of child-care as a means to promote professional development. No respondent in this study indicated that child-care was used to promote professional development, yet the number of dual-earner and single-parent households raising children continue to grow (Goodstein, 1994). With further research, relationships could be drawn among child-care and training, the benefits and drawbacks, and the effects on employers and employees when child-care was used to promote professional development.
5. For future study, it is recommended that question 15, "Check all items in which more computer hardware and software training is needed," focus not only on software and hardware training but include software and hardware currently utilized in the firm. With current data on software and hardware usage, analysis could be made and used to compare firms of differing demographics.

Implications

This research attempted to add to the existing body of research by analyzing the data from the manufacturing firms in Pitt County, North Carolina. The survey questions focused on the question of providing formal training and related factors. The majority of the respondents, 69.6 percent, agreed there was a need to provide formal computer hardware and software training for office employees. In addition when asked if the respondents were satisfied with the current amount of training, 52.2 percent replied that the current amount of training was unsatisfactory or could be improved. Results from this research concurred with current literature which indicated American companies see a need for formal training but have not invested the necessary resources to have a successful training program (Hayajneh, Uden, & Kedia, 1994; Office of Technology Assessment, 1990).

Perhaps the size of the firm would have an impact on responses to items in the survey. Respondents indicated that 53.4 percent of the responding manufacturing firms had 50 or fewer employees. Results from this study indicated there may be relationships among the available figures. An example was question 12, "On average, how much did your company spend on the formal computer hardware and software training for all office employees last year?" The majority of responses, 44 percent indicated "0-$500" as the average spent on all employee training last year, which concurred with related literature reviewed. For example, firms of 500 or more employees spent large sums of money on training, while firms with 100 or fewer employees spend little or nothing on training (Benton, Bailey, Noyelle, & Stanback, 1991; Office of Technology Assessment, 1990). These results indicated that the majority of responding firms spend little or nothing on training. Thus, a relationship between the size of the firm and money spent on training may exist. In other words, as the size of a firm increased in number of employees, the amount of money spent on training also increased.

No respondent in this study indicated child-care as a means to encourage professional development, but 32 of the 46 respondents indicated that the organization supported professional development. Could this be related to the size of the firms responding? According to Grossman (1992), a strong relationship existed between the size of the firm and policies on child-care in the workplace. Also, Hayghe (1988) reported a clear association between firm size and firms offering any type of child-care programs. Yet, the results from both studies indicated employers with child-care incentives ranged from 9 percent for firms with under 50 employees to 32 percent for firms with over 250 employees. This would indicate that smaller firms are limited in offering benefits to their employees which would affect recruitment. Thus, strong evidence supported the premise that firms with less than 50 employees would not have child-care incentives established. Therefore, smaller firms may limit their supply of employees by offering fewer benefits and incentives. The selection of potential employees may be affected if child-care is required by qualified applicants.

The results from this study indicated that most firms perform some form of training. However, the majority of the training indicated by the respondents was clearly on-the-job training. Perhaps the results of the study were affected by the size of the firms that responded. The literature indicated that small firms are less likely to invest money in training than larger firms. A majority of the responding firms in this study had 50 or fewer employees, and those firms spent 0-500 dollars on training which corresponds to the literature reviewed.

Finally, American firms, small or large, may learn from a better understanding of the role of the on-the-job training system in Japan. On-the-job training in Japan is structured to deepen and broaden workers' skills. The highly structured and organized character of Japan's training system was the key feature distinguishing Japan from the United States. In Japan, on-the-job training is as carefully planned as company-provided classroom training. Training and skill development has been an expected part of every worker's job. Cross training was as important as training for career advancement. Since the majority of the respondents in this study and studies reported in the literature indicated on-the-job training or some sort of training as the preferred method, perhaps investigating a structured method of training comparable to the Japanese would benefit American businesses. The Japanese method of on-the-job training would require more time invested in employees than money. Since less money is required, perhaps smaller firms could invest the required time to train employees. The final result could mean a qualified workforce and the ability to compete in the world marketplace.

Small firms in Pitt County have indicated that on-the-job training or on-site training is a preferred method to train employees. Small firms in Pitt County also indicated they spend little or nothing on training. If community colleges and other training providers are to play a vital role in providing training and retraining of the workforce that business and industry require as the U.S. economy becomes increasingly dependent upon technology, training issues such as modest sums of time and money must be taken into consideration when developing training programs. Therefore, alternative ways to provide training must be considered to deal with small firms and their training needs.

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Educational Preparation of the Office Professional: A Response from Professional Secretarial International Members

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Abstract

Roles and responsibilities of office professionals have changed dramatically in the past decade. Increasing responsibilities necessitate higher education and training. This study examined the educational needs of office professionals as perceived by members of Professional Secretaries International. PSI members were queried regarding their perceptions on (a) educational preparation needed for various office support positions; (b) specific courses needed for job success; and (c) factors that could bring greater recognition to the profession. Respondents agreed that a 2-year community college degree is minimum preparation needed to get jobs and that a 4-year degree in an office support area merits the greatest potential for promotion.

Introduction

As technology continues to affect the workplace, many job responsibilities of employees continue to change. The secretarial field seems to be a continual reflection of the advancement of technology. Skills and competencies that helped secretaries reach the top of their profession in the past are inadequate in today's dynamic offices. According to Stone (1995), office professionals' roles have changed as they are beginning to receive recognition for their knowledge of new office systems. Managers have come to realize the level of education, training and knowledge the jobs require.

Dentzer (1994) reported corporate restructuring and downsizing has eliminated middle managers and often the secretaries who worked alongside them. Meanwhile, the remaining jobs have been drastically "upskilled." Thousands of secretaries now work the latest software or organize data and systems for an entire office. Richardson (1998) extended the responsibilities list for administrative support staff by adding the role of change agent. He explained that most administrative support personnel have well-developed communication skills, having become skillful at oral communications and listening through the normal process of doing their jobs.

Kerka (1995) and Stone (1995) noted that secretaries are under increased workloads and are assuming duties previously performed by management. The increasing responsibilities being assumed by secretaries are necessitating higher education and training, but formal training for technology and managerial/supervisory duties is somewhat lacking. What, then, are educational needs of evolving occupations involving office professionals?

Research Objective and Research Questions

The objective of this study was to determine educational needs of office professionals as perceived by members of Professional Secretaries International. Specific research questions were: (a) What are perceptions of selected office support personnel regarding educational preparation needed for various office support positions? (b) What specific courses do selected office support personnel perceive to be needed for job success? and (c) What factors could bring greater recognition to the profession according to selected office support personnel?

Literature Review

Research shows that today's secretaries operate more like information managers rather than "coffee-fetching gofers." Successful secretaries have adapted to the Information Age by expanding their job skills and realizing that knowledge is power (Male secretaries, 1996). The Administrative Development Institute (*The impact*, 1994) surveyed members of Professional Secretaries International (PSI) and found that 71% of the secretaries were taking on duties such as purchasing office materials, hiring personnel, training and supervising, and supervising quality management programs that had been performed by management.

North and Worth's (1997) research on 1995 workplace competencies found that more than 80% of the entry-level classified advertisements in business/professional areas included technology skills. Marino's (1993) research concluded that despite the promise that technology will expand the roles of support personnel, findings suggested that organizations are not using information technology to change the jobs of these support workers.

McEwen (1996) polled office support personnel to identify skills performed in office support positions and noted that more professional behaviors of office support positions were being desired. Linkemer (1996) also provided a list of duties that reflect the higher level skills needed by today's secretaries. Farnham (1997) reported that though secretaries have declined by one-fifth in numbers, fewer and fewer function in traditional secretarial roles. Instead, they are being asked to take on various tasks once handled by displaced middle managers. This newfound authority requires that secretaries be skilled in managing projects, selecting software, and making decisions about vendors. And these new responsibilities definitely demand a return to the classroom which creates higher productivity when office professionals are allowed to fully utilize their potential (Stone, 1995).

According to Waldrop (1994), "about half of Professional Secretaries International (PSI) members say they are frustrated by the lack of training available, and 62 percent of secretaries say computer training would benefit them most" (p. 4). Farnham (1997) said that until recently, employers didn't give secretaries a financial incentive to learn new skills. Nearly a third of the companies still pay secretaries according to a system known as "rug ranking" which ties pay to the level of the person for whom a secretary works.

A major trend influencing the work environment today is the training and development of the nation's workforce, according to Cochrane, Hart, and Morris (1996) who emphasized industry's need for end-user learning and universities' obligation to provide programs to prepare students for the roles in training. Alexander (1996) studied the secretary's new role as trainer and the implications for office educators and found that "Over one-quarter of the secretaries surveyed are training co-workers to use computer hardware, and almost half are training co-workers to use computer software" (p. 23).

McEwen (1997) suggested that office professionals should "take advantage of opportunities to grow, to develop, and to make himself or herself a valuable member of the organization" (p. 45). As the secretarial role continues to change with technological advances and changes in the business environment, new education and training demands for the office professional must be considered by educators.

Research Procedure

A descriptive research design using the survey method was used to gather data for this study. Using a focus group approach, members of Beta Omicron Chapter, Delta Pi Epsilon, who are involved in preparing office professionals, were queried regarding their perceptions on educational needs of office professionals. Focus group results were then framed into survey instrument items to answer research questions. The pilot test for instrument reliability was conducted by 15 members of Beta Omicron Chapter. Each member contacted at least one office professional asking him or her to complete the instrument and identify questions or suggestions regarding the instrument. Changes were incorporated into the final instrument, and approval to gather data was granted by the Human Subjects Committee at Southern Illinois University at Carbondale.

The national office of Professional Secretaries International provided a randomly selected list of 1,000 PSI members and addresses. A cover letter and the instrument were sent to all 1,000 members. Responses were received from 325; however, not all instruments were correctly completed. An adjusted sample of 302 responses was used for data analysis representing a 30.2% return rate.

Findings

Respondents ranged in ages from 21 to 74 years with 192 (65.0%) respondents being between 31 and 50 years of age. While 29 (9.8%) respondents were under 30 years of age, 12 (4%) were over 60. More than half of respondents (N=153, 51.5%) have worked for their present employer from 1 to 5 years with 81 (27.3%) having worked for their present employer from 6 to 10 years. Respondents have worked an average of 6.97 years in their current position and have an average of 19.64 years' experience in office support positions.

Manufacturing was listed as the principal business for the largest group of respondents (n=85, 28.7%). As shown in Table 1, the second largest number of respondents marked the "other" category for principal business, 36 (12.2%) indicated insurance followed by medical/health care, education/research, and government. Table 1 summarizes responses concerning principal business of respondents' employing organization.

Table 1
Organization's Principal Business Classification

Business Classification	Number of Responses	Percentage
Manufacturing	85	28.7
Other	58	19.6
Insurance	36	12.2
Medical/Health Care	32	10.8
Education/Research	22	7.4
Government	22	7.4
Utilities/Communication	14	4.7
Banking/Finance	11	3.7
Wholesale/Retail	9	3.0
Legal	7	2.4
Totals	296	99.9

The largest number of respondents (N=82, 28.0%) report salary ranges of $36,000 and over with the second largest number (N=80) indicating salaries between $30,000 - $35,000. Table 2 summarizes annual salary ranges as reported by respondents.

Table 2
Annual Salary Reported by Respondents

Salary Range	Number of Respondents	Percentage
Under $20,000	32	10.9
$20,000 - $25,000	52	17.7
$25,100 - $29,900	47	16.0
$30,000 - $35,000	80	27.3
$36,000 and over	82	28.0
Totals	293	99.9

Ninety-three respondents indicate they have completed a four-year college degree with 24 having completed more than four years of college. Table 3 provides a summary of respondents' highest educational level completed.

Table 3
Educational Level of Respondents

Highest Educational Level Completed	Number of Responses
High School	225
Business school/career (secretarial)	98
One year of college	57
AA Degree	23
AS Degree	74
Two years of college, no degree	24
Three years of college	15
Four years of college, no degree	4
Four-year college degree	93
More than four years of college	24

*Some respondents indicated more than one educational level.

Educational Preparation Needed for Office Support Positions

The first research question was to determine perceptions of selected office support personnel regarding educational preparation needed for various office support positions. Analysis of questionnaire items indicate that the largest number of respondents (N=82, 27.2%) believe a 2-year community college degree with a major in business would be required if new employees were hired in office support positions. A fewer number of respondents (N=64, 21.2%) feel a 2-year degree from a business/career school would be needed while 61 (20.2%) feel a four-year degree in an office support area would be needed.

When asked the primary source of preparation for their position, 61 (20.3%) respondents indicated the 4-year college degree in office support; an equal number, 47 (15.6%) listed the 2-year business school and a 2-year college/university degree. Eighty-two (27.2%) respondents feel the 2-year community college degree with a business major is the level of education needed for entry-level office support positions. The largest number of respondents (N=88, 29.1%) feel the 2-year college degree with a business major is the minimum education needed to get jobs in office support and be promoted while 96 (32.8%) respondents believe the 4-year business degree is the educational level needed to merit the highest starting salary. The 2-year community college degree with a business major is believed to be the most beneficial to new employees, and the 4-year business degree is believed to be the level of education providing the greatest potential for promotion. See Table 4 for a summary of all responses.

To answer research question 2, respondents were asked to rate specific courses needed for job success. Ratings included very beneficial, somewhat beneficial, of little benefit, or respondent did not take the specific course. As shown in Table 5, the three courses identified by the largest number of respondents as very beneficial for job success included typewriting/keyboarding (N=256, 85.6%), computer software applications (N=255, 85.6%), and business communications (N=243, 81.8%). While only 19 (8.8%) respondents listed accounting as very beneficial for job success, 123 (56.9%) respondents felt accounting was somewhat beneficial. Business law was identified as somewhat beneficial by 116 (38.8%) respondents while 89 (29.8%) respondents felt business law was of little benefit. Table 5 provides a complete summary of responses for all courses.

Respondents ranked English courses (N=239, 82.7%), self-learning (N=234, 79.3%), and workshops or seminars (N=230, 76.9%) as very beneficial in preparing them for their jobs. Company-sponsored training, high school business courses, and business courses at 4-year colleges were ranked as very beneficial by more than half of respondents. Table 6 summarizes respondents' perceptions of best sources for their job preparation.

The third research question was to determine factors that could bring greater recognition to the office support profession according to selected office support personnel. According to respondents, both a 4-year college degree and CPS certification are equally important in bringing greater recognition and/or a better image to their positions. Fifty-seven respondents feel CPS certification will bring greater recognition to their profession while an almost equal number (N=56) feel the image of their position does not need to be improved. More than half of respondents (N=169) believe the CPS rating provides the greatest help in achieving internal satisfaction. Ninety-three respondents feel CPS certification helps office support personnel gain respect from co-workers, and 74 believe CPS certification aids in their potential for promotion.

When asked their opinion about the overall status of office support personnel, 142 (43%) feel the status is better than it was a few years ago. Eighty-five (27%) respondents believe the status of office support positions is good, while 22 respondents believe the status is excellent. Additional education, becoming more professional, and more technical computer knowledge are all identified as factors needed to improve the status of office support positions.

Table 4

Educational Preparation needed for Office Support Positions

Educational Level	High school	2-year business school	2-year college (gen. ed.)	2-year college (bus)	2-year univer.	4-year degree (office)	4-year degree business degree	Any 4-year degree	Other
Fill office support positions	23 (7.6%)	64 (21.2%)	4 (1.3%)	82 (27.2%)	33 (10.9%)	61 (20.2%)	22 (7.3%)	11 (3.6%)	2 (0.7%)
Primary source of education	40 (13.3%)	47 (15.6%)	4 (1.3%)	47 (15.6%)	31 (10.3%)	61 (20.3%)	32 (10.6%)	10 (3.3%)	29 (9.6%)
Entry-level positions	25 (8.3%)	63 (20.9%)	5 (1.7%)	82 (27.2%)	31 (10.3%)	63 (20.9%)	20 (6.6%)	10 (3.3%)	2 (0.7%)
Get jobs and be promoted	41 (13.6%)	54 (17.9%)	8 (2.6%)	88 (29.1%)	50 (16.6%)	33 (10.9%)	16 (5.3%)	8 (2.6%)	4 (1.3%)
Merit highest starting salary	2 (.7%)	9 (3.1%)	2 (.7%)	29 (9.9%)	8 (2.7%)	68 (23.2%)	96 (32.8%)	75 (25.6%)	4 (1.4%)
Level most beneficial to new employees	1 (.3%)	47 (15.7%)	7 (2.3%)	85 (28.4%)	23 (7.7%)	79 (26.4%)	39 (13.0%)	17 (5.7%)	1 (0.3%)
Providing greatest promotion potential	4 (1.4%)	11 (3.7%)	1 (0.3%)	19 (6.4%)	7 (2.4%)	59 (20.0%)	123 (41.7%)	65 (22.0%)	6 (2.0%)

Table 5
Specific Courses Needed for Job Success

Courses	Very Beneficial	Somewhat Beneficial	Of Little Benefit	Did Not Take
Accounting	19 (8.8%)	123 (56.9%)	65 (30.1%)	9 (4.2%)
Business Communications	243 (81.8%)	37 (12.5%)	4 (1.3%)	13 (4.4%)
Business Law	69 (23.1%)	116 (38.8%)	89 (29.8%)	25 (8.4%)
Business Management	175 (58.3%)	77 (25.7%)	14 (4.7%)	34 (11.3%)
Business Math	97 (33.0%)	122 (41.5%)	47 (16.0%)	28 (9.5%)
Computer Programming	138 (46.5%)	49 (16.5%)	32 (10.8%)	78 (26.3%)
General Business	15 (9.8%)	101 (66.0%)	14 (9.2%)	23 (15.0%)
Computer Software Applications	255 (85.6%)	21 (7.0%)	7 (2.3%)	15 (5.0%)
Office Management	217 (72.6%)	55 (18.4%)	9 (3.0%)	18 (6.0%)
Office Procedures	228 (76.3%)	54 (18.1%)	6 (2.0%)	11 (3.7%)
Office Systems Courses	180 (61.0%)	61 (20.7%)	14 (4.7%)	40 (13.6%)
Recordkeeping	118 (40.1%)	98 (33.3%)	37 (12.6%)	41 (13.9%)
Shorthand/Speedwriting	100 (33.4%)	100 (33.4%)	72 (24.1%)	27 (9.0%)
Typing/Keyboarding	256 (85.6%)	31 (10.4%)	6 (2.0%)	6 (2.0%)

Percentage based on number of responses in each category

Table 6
Best Sources for Job Preparation

Sources	Very Beneficial	Somewhat Beneficial	Of Little Benefit	Did Not Take
High School Business Courses	164 (55.4%)	61 (20.6%)	16 (5.4%)	55 (18.6%)
Business Courses in Vocational School	39 (15.0%)	20 (7.7%)	15 (5.8%)	186 (71.5%)
Business Courses in Business/Career School (secretarial)	124 (45.1%)	24 (8.7%)	3 (1.1%)	124 (45.1%)
Business Courses in Community College	111 (47.4%)	4 (1.7%)	6 (2.6%)	113 (48.3%)
Business Courses at 4-year College	143 (53.0%)	25 (9.3%)	1 (0.4%)	101 (37.4%)
English Courses	239 (82.7%)	31 (10.7%)	5 (1.7%)	14 (4.8%)
Math Courses	107 (38.2%)	111 (39.6%)	37 (13.2%)	25 (8.9%)
Workshops or Seminars	230 (76.9%)	63 (21.1%)	5 (1.7%)	1 (.3%)
Company-Sponsored Training	198 (67.8%)	60 (20.5%)	10 (3.4%)	24 (8.2%)
Self-Learning on My Own	234 (79.3%)	56 (19.0%)	2 (.7%)	3 (1.0%)

*Percentages based on number of responses for each category.

Conclusions

Respondents believe a 2-year community college degree is needed by personnel to fill office support positions, is the educational level needed by entry-level office support personnel, and is the minimum level of education employees need to get jobs and be promoted. The 4-year college degree is perceived to merit the highest salaries and to provide the greatest potential for promotion. Professional workshops and seminars are believed to be the most beneficial methods for keeping up to date and prepared for office support job.

Typing/keyboarding, computer software applications, business communication, office procedures and office management are identified as very beneficial courses. Respondents rated English courses, self-learning, and workshops and seminars as very beneficial in preparing them for their jobs.

Respondents believe that both a 4-year college degree and CPS certification are equally important in bringing greater recognition and/or a better image to their positions. Respondents feel CPS certification helps office support personnel gain respect from co-workers. Additional education, becoming more professional, and more technical computer knowledge are all identified as factors needed to improve the status of office support positions.

Recommendations

Based on the findings of this study, the following recommendations are offered:

1. More research is needed as educational leaders plan and develop office support programs. Input from office support personnel should be considered to make courses and programs more relevant to needs of office support personnel.
2. More focus may be needed in developing workshops and seminars to help office support personnel maintain skills for their positions.
3. Students majoring in office support programs should be encouraged to complete 4-year college degrees in order to merit the highest salaries and the greatest potential for promotion.

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The Effect of Frequent Quizzes on Unit Test Performance of Students in a Business Communications Course

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Abstract

This study was designed to test the effectiveness of applying frequent quizzes in a business communications class. This study compared two groups. Section A had announced quizzes applied at the end of each chapter of a multi-chapter unit. Section B did not have announced quizzes applied at the end of each chapter of a multi-chapter unit. Two intact sections of business communications classes at the collegiate level were studied. The student's scores on multi-chapter unit tests were compared to determine whether applying frequent tests enhanced student's performances. No significant differences were found between the two study groups.

Conclusion of the study are: (a) Both applying quizzes after individual chapters and not applying quizzes after individual chapters produce similar student performance results relative to achievement on multi-chapter unit tests. (b) Administering announced quizzes after individual chapters does not appear to motivate extra reading or studying for unit test preparation.

Few tools are as universally applied in education as testing. Testing is used to evaluate students mastery of instruction and to motivate them to receive instruction. "Testing can help the teacher determine the pace of classroom instruction. Test results are useful tools for measuring the effectiveness of instruction and learning" (Rudman, 1989).

A great deal of research has been conducted concerning the frequency, type, and length of testing instruments. Researchers have also investigated whether tests encourage students in mastering instruction. Advocates of testing contend that frequent testing would encourage students to study and review more often and increase instructional effectiveness. They also argue that additional testing would offer opportunities for teachers to correct student errors, reward good performance, and inform students of their current progress. Other researchers, however, have noted that frequent testing could take time away from instruction. With greater emphasis placed on testing, some researchers maintained that students may direct their efforts toward their test performances rather than learning. "Those educators also said that too frequent testing might inhibit integration of larger units of instructional materials and become tedious for students and consequently, reduce their enthusiasm about learning" (Bangert-Drowns, Kulik, & Kulik, 1986, p.89).

Tests may be an important tool for instructors in the entire teaching process. "Testing and teaching are not separate entities . . . Whether this process took place through systematic teaching and testing, or whether it was through a discovery approach, testing was and remains, an integral part of teaching" (Rudman, 1989). This study focused on the possibility that frequent quizzes could encourage students' learning and performance in business communications classes.

Statement of the Problem

Which method of business communications classroom instruction, using frequent quizzes or not using frequent quizzes, is more effective for promoting learning. "Teacher educators should provide leadership in conducting and applying research which assumes that instruction is based on valid information, new concepts, and technological advances" (Policies Commission for Business and Economic Education, 1993). If teachers of business communications are to effectively instruct and prepare students, information relative to the effectiveness of various instructional methods must be analyzed systematically. This systematic analysis should include methods of motivation, measurement, and evaluation.

Business communications courses usually are taught in classrooms designed for the lecture method of instruction. The instructional facility usually is equipped with a chalkboard or whiteboard, overhead projector, and sometimes microcomputer presentation equipment. The teacher lectures using visual aids as students follow along. Students are expected to take notes, read assigned information, complete assignments, and prepare for exams. Motivating students to read assigned materials and prepare for exams is a challenge for business communications instructors.

Purpose of the Study

The study is designed to identify the effectiveness of frequent chapter quizzes as a method for motivating stronger student performance on unit tests in a business communications class. Specifically, the research addressed: Is there a difference in student performance on multi-chapter unit tests between students who complete announced quizzes at the end of each chapter and students who do not complete announced quizzes at the end of each chapter?

Related Literature

A thorough review of the related literature was conducted. The effectiveness of testing has been the concern in the areas primarily of educational psychology. No research was discovered focusing on the effectiveness of testing in business communications.

A paper by Bangert-Drowns, Kulik, & Kulik (1986) noted that "testing advocates argued that more frequent testing would increase instructional effectiveness and would encourage students to study and review more often." The paper also noted that frequent testing could reduce instructional time and motivate teachers to direct their efforts toward test taking instead of learning. Bangert-Drowns, Kulik, & Kulik concluded that one may expect positive effects from frequent classroom testing and that teachers can improve the affective outcomes of instruction with frequent testing. The papers suggested that increasing the frequency of tests may create a more positive classroom atmosphere.

A study by Becker, Davis, and Grover (1989) allowed student participants of the study to choose between frequent (chapter-by-chapter) tests and unit (four-chapter) tests. This study reported no advantage from frequent testing. No significant differences were found between the chapter tests group and the unit tests group. Becker, Davis, and Grover found no significant difference between the two groups regarding an attitude survey which was administered. However, when asked "How well did the option selected suit your needs?," all of the chapter tests group reported that they would select that option again, but only one half of the unit tests group reported they would select the unit tests option again.

A study by Bergstrom and Gershon (1991) focused on the individual differences in anxiety, computer literacy, and satisfaction when taking a computer adaptive test. Gershon and Bergstrom reported that apprehension after the test was effected by the total number of test items administered. "The more items a person received, the more apprehensive they were following the tests." Dixon, Kika, and McLaughlin (1992) examined the effect of frequent testing on eleventh grade algebra students' performance. One group was administered weekly testing. The second group was administered biweekly testing for two months. Then the testing schedule was reversed. The results indicated performance improvements during the weekly tests versus the biweekly tests. Attitude surveys indicated that students preferred weekly testing.

The purpose of a study by McDaris (1984) was to measure college students' performance on more frequent testing by dividing a unit of study into smaller segments and administering three short tests, and comparing results to those for one long tests. McDaris found that the frequent testing group improved their performance and preferred frequent testing. The frequent testing group reported they believe they are learning the material more thoroughly and spend more time studying for the tests. McDaris stated that "testing students more frequently also seems to be more consistent with the way in which individuals store and process information."

The frequency of testing was the focus of several older studies (Fitch, Drucker, & Norton, 1951; Hertzberg, Heilman, & Leunberger, 1932; Keys, 1934, Turney, 1931). Each of these studies found that frequent testing aids performance in college courses and points to factors such as the amount of feedback and studying as possible explanations.

Methodology

The study utilized a quasi-experimental design. Two groups (intact classes) were studied and designated as Treatment Groups A and B. In Treatment Group A students were administered a chapter quiz after each chapter within a unit and a unit test at the end of a multi-chapter unit. Treatment Group B was not administered chapter quizzes within a unit but was administered a unit test at the end of a multi-chapter unit.

Treatment Groups A and B used the same course materials. Both groups completed the same textbook readings and assignments. Identical unit tests were administered to both groups. Only the unit tests scores were used for data analysis.

Two sets of variables were identified in the study. The independent variables were (a) quizzes administered after each chapter of a multi-chapter unit and (b) no quizzes administered after each chapter of a multi-chapter unit. The dependent variables were (a) unit test scores of students who were administered a quiz after each chapter and (b) unit test scores of students who were not administered a quiz after each chapter.

The two treatments were conducted during the 1997 fall semester at the collegiate level with two intact sections of a business communications course. The two sections were taught by the same business communications instructor.

Findings

The population of the study consisted of 50 students enrolled in two intact sections of an undergraduate business communications course at a university. A single factor analysis of variance (ANOVA) was applied to the beginning grade point averages between both groups. The ANOVA revealed no statistically significant difference between the groups beginning grade point averages.

Descriptive statistics consisting of means and standard deviations of the unit tests scores for Treatment Groups A and B are presented in Table 1.

Table 1
Unit Test Score Achievement: Means and Standard Deviations of the Unit Test Scores Between the Two Treatment Groups

Groups	n	Sum	Mean	Standard Deviation
Treatment A	22	845	38.409	13.331
Treatment B	28	1055	37.679	13.683

Table 2 depicts the results of the single factor analysis of variance (ANOVA) between the unit tests scores of students who were administered chapter quizzes (Treatment Group A) and students who were not administered chapter quizzes (Treatment Group B). The analysis revealed no statistically significant difference in the scores between the two treatment groups.

Table 2
Analysis of Variance for Treatment Groups on Unit Tests Achievement

Source of Variation	SS	df	MS	F	p
Between Groups	6.575	1	6.575	0.486	0.489
Within Groups	649.425	48	13.530		
Total	656.000	49			

Conclusions

Based on the findings of this study, the following conclusions are drawn:

1. Both applying quizzes after individual chapters and not applying quizzes after individual chapters produce similar student performance results relative to achievement on multi-chapter unit tests.
2. Administering announced quizzes after individual chapters does not appear to motivate extra reading or studying for unit test preparation.

Implications

The results of this study suggest implications for classroom teachers and teacher educators. The findings revealed that administering quizzes to students after each chapter of a business communications class did not improve student scores on multi-chapter unit tests. Thus, classroom teachers should consider if the time needed for the creation, administration, and evaluation of chapter tests is a valuable teaching tool or if that time should be spent on other teaching methodologies that have been proven effective.

Recommendations for Further Study

1. The study should be replicated with different age groups.
2. Other factors that affect student test-score outcome should be investigated.
3. Other instructional methods for teaching business communications should be investigated.
4. The study should be replicated and include an investigation of student?s perceptions of the course.

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How Businesses Are Using the Internet and Intranets—What Are the Implications of This Usage for Business Education?

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Abstract

The Internet and intranets are rapidly altering the manner in which companies take care of business. The purpose of this research was to determine exactly how businesses are using these growing phenomena. Type and size of companies using the Internet/intranet, classifications of employees and competencies required for those employees, and specific uses and importance of the Internet/intranet were examined. Data reveal that the Internet/intranets are, indeed an integral part of doing business today and that employees will need new skills and knowledge in order to be successful in an environment rich in technology. What, then, is the expectation for future curriculum and instruction in business education?

Introduction

Electronic communication is a phenomenon much like the Industrial Revolution at the turn of the 20th Century. Numerous authors, such as Banham (1995), are suggesting that the Internet is as significant as the invention of the printing press or telephone. Without a doubt, the Internet is the fastest growing communication medium of all time. According to a U.S. Commerce Department report available online at www.ecommerce.gov, radio took 30 years to reach an audience of 50 million, TV took 13, and the Internet took just four years. Moreover, Rosen (1997) reports that "increasing information flow increases employee efficiency" (p. 3). The Internet may provide the path to this needed employee efficiency believes Edwards (1997).

> Companies that are trying to make money at a place like Internet World [exhibition of Internet-related products] are in large part trying to sell tools to businesses in order to help businesses become more efficient internally and to communicate better with their own staffs, customers, suppliers (Edwards, 1997, p. 4).

Definitions

The **Internet** is defined as "A bunch of computer networks all connected together. Several million computers all over the world are connected to those networks, and if you have access to one network, you have access to all the others" (Levine & Young, 1996, p. 8-9). Edwards (1997) reports that the Internet is heavily used to buy and sell things; in fact, in a recent survey, Nielsen research people reported that 10 million people in the United States and Canada have bought something online (p. 4).

Intranets are defined by Hannon (1998) as LAN or WAN networks connecting only an organization's internal computers and using the same TCP/IP protocol of the Internet that enables computers to communicate with each other regardless of computer type. "For example, Apple computers can talk to IBM computers, and UNIX based computers can send and receive information from IBM AS400s" (p. 22).

Purpose of the Study

Historically, business teachers have prepared students for employment in the business world. Numerous professional groups such as the National Business Education Association, the Ohio Business Teachers Association, and Delta Pi Epsilon as well as numerous individuals have identified electronic communications as an important part of today's workplace. These individuals today are joining teachers across the curriculum in using technology in general and the Internet in particular to teach students to access information and to utilize communication capabilities. However, business teachers do not have necessary documentation about the Internet and intranets; and after a review of literature, no specific findings with reference to usage, importance, and competencies as related to the Internet and/or intranets were identified.

Problem statement

The current research project was designed to determine how companies are currently using the Internet and intranets, what importance companies place on the Internet/intranet in terms of success of their business currently and in the future, and what competencies are required of users. The study is an *ex post facto* research design because the research measures usage and extent and does not in any manner attempt to manipulate any variables. Several research questions were developed:

1. What is the profile of businesses using the Internet and intranets?
2. How important are the Internet/intranets to the success of businesses now and in the future?
3. What type and percentage of employees use the Internet/intranets?
4. How are employees using the Internet/intranets?
5. What Internet/intranet competencies are expected of prospective employees?
6. How are employees trained for using the Internet and/or intranets?
7. What are the implications of Internet/intranet usage for Business Education?

Methodology

Warwick and Lininger (1975) write, "The greatest single advantage of a well-designed sample survey is that its results can be generalized to a larger population within known limits of error" (p. 11). Because of the need to apply results to reform curriculum and instruction across the U.S., a survey was designed and a pilot study of 50 Fortune 500 companies ensued. A list of Fortune 500 companies was acquired from the Internet, and a randomized numerical search produced 50 organizations to whom the survey, along with a letter of explanation, was mailed on January 5, 1998. Sixteen percent of the companies responded to the questionnaire; all respondents indicated that the companies used the Internet/intranets extensively and in a variety of ways.

Because of the overwhelming similarity of answers to the pilot mailing, the researchers decided to broaden the investigation to Ohio companies. A list of Ohio companies was generated from the American Business Directories' database and 486 companies with employees of 100 and over were randomly selected. A second search of Ohio companies from the American Business Directories was conducted to identify companies with employees of less than 100; 150 companies were randomly selected. The adjusted survey with instructions built in at the top of the instrument (instead of a separate letter) contained 25 questions designed to gather data necessary to answer the seven research questions. The instrument was mailed on March 24, 1998, to a total of 636 companies in 11 Ohio cities—Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Findlay, Marysville, Toledo, Warren, and Youngstown—representing the five regions (northeast, southeast, central, northwest, southwest).

Narrowing the search to Ohio companies provided an opportunity to learn about usage in the workplace where Youngstown State University and Kent State University office support and business education graduates would likely be employed. Moreover, since the survey was mailed to a large number, further generalizability was established. The researchers continued to deem information about Fortune 500 companies to have relevance, especially for comparison purposes; therefore, the instrument was altered (Questions 2 and 4), and 100 Fortune 500 companies different from the 50 pilot study companies were randomly selected. The instrument was mailed on March 30, 1998.

Rate of Return

The initial response to the survey was low—10 percent. Many surveys were returned because individuals to whom the surveys were addressed were no longer with the company and so the questionnaires were discarded by the recipient companies rather than being forwarded to an appropriate individual. Surveys were remailed to companies whose addresses could be found through library records. All in all, questionnaires were sent to 736 businesses, but this number was subsequently reduced to 703 as 33 of the firms were not included in the response rate computation due to undeliverable mail. Those companies that did not respond after one month were sent another survey addressed to "Director of Technology" in place of a specific name. Responses from the second mailing increased the rate of return to 16 percent. As a last resort to improve the percentage of returns, the researchers placed 115 phone calls which increased the return rate by 9 percent for a total response rate of 25.2 percent as illustrated in Table 1.

Data Analysis

Once the questionnaires were returned and follow-up efforts were exhausted, researchers used the quantitative data to answer research questions. Questionnaire answers were inputted into a computer to establish a database to investigate the research questions.

Table 1
Rate of Return of Questionnaires

Population	Number Mailed	Number Undeliverable	Number Valid	Number Completed	Return Rate (Percentage)
Ohio Businesses	636	33	603	158	26.2
Fortune 500 Companies	100	0	100	19	19.0
Totals	736	33	703	177	25.2

Responses to survey items 1 through 4 were subjected to descriptive statistical analysis, e.g., frequency and percentage of the number of organizations whose nature of business is financial/insurance. Glass & Hopkins (1984) write that "Percentages are more useful than frequencies when the number of observations is arbitrary, as in the number of persons in a sample" (p. 18). Since observations correspond to respondents in the current study, percentages depict responses in a clear manner and are, therefore, used along with frequencies to clarify data.

Survey responses to items 5 through 25 provided the basis for comparison of the extent of usage and importance of the Internet and intranets. Glass & Hopkins also write that "The chi-square (X^2) test statistic can be used to determine whether the observed proportions differ significantly from a priori or theoretically expected proportions" (p. 282). The data in the current study came from observed proportions. Therefore, the chi-square was used to test the significance of differences among variables at the .05 level. The independent variables are: nature of organization, number of employees, organizational identification as national or multinational, and location. Using these independent variables, researchers determined, for example, the relationship, if any, between size of organization and Web Site ownership.

Significance of the Study

The results of this study are important for business teachers as they prepare students for the ever-changing workplace and/or postsecondary education. These researchers provide valuable information about the importance of Internet/intranet skills and concepts needed by upper-level administrators, middle-level managers/supervisors, and office support personnel who are typically those served in business courses. The results are potentially significant, too, for those school leaders who critically examine curriculum and instruction and then engage in teacher preparation for a reconceptualization of curriculum. Students, likewise, could be beneficiaries of this research as they are the workers of the future who will find, keep, and advance in positions because of the skill and knowledge attainment instituted by their teachers.

Results

The purpose of this section is to present the results of the current study. The data are derived from surveys. The findings are presented in relation to the seven research questions.

Representative Demographics: Entire Population

The value of reporting descriptive statistical findings is based on the need to illustrate that the sample groups are representative of the populations (Tuckman, 1988). Responses to Questions 1, 2, 3, and 4 of the survey provide necessary demographics to establish representativeness of both groups.

Nature of Business

The companies surveyed were to choose a category that best described the nature of their business from a list of nine categories. Table 2 illustrates the answers. Included in the "other" categories were: telecommunications, publishing, security services, 3rd party logistics, direct sales, construction, architectural/engineering, wholesale distribution, industrial distribution, waste management, broadcast communications, metal finishing, consulting, local governmental agency, industrial design, non-profit mental health, scrap processor, service-contract packager, photo studio, interior contractor, religious, non-profit training for employment, telemarketing, and retirement community. The largest percentage of respondents was in the manufacturing category.

Findings also reveal that 49.7 percent of the companies were multinational companies. On the other hand, 46.9 percent of the companies reported that they were not involved in international business.

Table 2
Nature of Business

Nature of Business	Number	Percent
Financial/Insurance	9	5.1
Manufacturing	82	46.3
Retail	12	6.8
Utilities	2	1.1
High Technology	3	1.7
Health/Medical	13	7.3
Transportation	8	4.5
Legal	2	1.1
Other	45	25.4
Missing	1	.6
Totals	177	100.0

Number of Employees

The companies were to choose a category to indicate the number of employees the firm employs. Number of employees in the companies that responded ranged from 1 to 125,000 as depicted in Table 3.

Location of Businesses

At the outset of the research, 11 cities in Ohio (Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Findlay, Marysville, Toledo, Warren, and Youngstown) were selected because of their location in either the northeastern, northwestern, southeastern, southwestern, or central regions of Ohio. Table 4 depicts the geographic areas of the respondents. The 100 Fortune 500 companies were located throughout the United States.

Table 3
Number of Employees

Size of Company	Number	Percent
1 - 10	13	7.3
11 - 30	6	3.4
31 - 50	2	1.1
51 - 100	15	8.5
101 - 500	88	49.7
Over 500	50	28.2
Missing	3	1.7
Totals	177	100.0

Table 4
Location of Businesses

Region	Number	Percent
Ohio		
Northeastern Ohio	91	51.4
Northwestern Ohio	20	11.3
Southeastern Ohio	6	3.4
Southwestern Ohio	15	8.5
Central Ohio	22	12.4
Multiregional Ohio	4	2.3
Fortune 500		
Northeastern U.S.	9	5.1
Southeastern U.S.	0	0
Northcentral U.S.	5	2.8
Southcentral U.S.	2	1.2
Southwestern U.S.	1	.6
Multiregional U.S.	2	1.1
Totals	177	100.0

Inferential Statistical Findings

What Businesses Use the Internet and/or an Intranet?

"Business-to-business electronic commerce will represent $66 billion in U.S.-related Internet revenues by the year 2000" with the overall [business and personal] Internet economy expanding from the current $15 billion to around $200 billion reports one Web Site author (http://watson2.cs.binghamton.edu/~jlubinsk/ec/how.html). Amano & Blohm (1997) used employment figures to study Internet usage and found that the Internet added approximately "three-quarters of a million jobs" in publicly traded firms in the U.S. in 1996; this represents one-half of all of U.S. job growth (p. 8).

Current findings illustrate that 100 percent of the Fortune 500 companies use the Internet while 81.6 percent of all sizes of Ohio companies use the Internet. The difference of .045 was significant at the .05 level because of the higher usage by Fortune 500 companies. The study also gathered results regarding intranets—94.7 percent of the Fortune 500 companies use an intranet while 53.2 percent of all sizes of Ohio companies use an intranet. The difference of .001 was significant at the .05 level again because of the higher usage by Fortune 500 companies. Table 5 depicts these results.

Importance of Internet/Intranet to the Success of the Business

Current status. In response to the question, "How important is an intranet to the success of your organization?" answers from Ohio companies generated a mean score of 3.22 and from Fortune 500 companies, 3.28. These mean scores indicate that the importance of an intranet is at a point somewhere between "Important" and "Very Important" for all respondents.

The mean scores on importance of the Internet are lower than those for intranets depicting the importance of the Internet as having less value, with a level of just above "Somewhat Important" (mean score equals 2.21) for Ohio companies and almost "Important" (mean score equals 2.89) for Fortune 500 as depicted in Table 6.

Table 5
Businesses Using the Internet/Intranets

Group	Businesses Using		Businesses Not Using		Missing		Statistical
	Percent	Number	Percent	Number	Percent	Number	Difference
Internet							
Ohio Companies	81.6	129	17.7	28	.6	1	
Fortune 500 Companies	100	19	0	0	0	0	.045 (<.05)*
Intranets							
Ohio Companies	53.2	84	41.8	66	5.1	8	
Fortune 500 Companies	94.7	18	5.3	1	0	0	.001 (<.05)*

*Difference is significant at the .05 level

Table 6
Current Importance of Internet/Intranet to the Success of the Business

Rating	Ohio Companies Percent	Ohio Companies Number	Mean	Fortune 500 Companies Percent	Fortune 500 Companies Number	Mean
Intranets			3.22*			3.28*
Very Important	27.8	44		36.8	7	
Important	10.8	17		47.4	9	
Somewhat Important	10.1	16		10.5	2	
Not Important	3.2	5		0	0	
Missing	48.1	76		5.3	1	
Internet			2.21*			2.89*
Very Important	8.8	14		36.8	7	
Important	15.2	24		26.3	5	
Somewhat Important	43.0	68		26.3	5	
Not Important	15.8	25		10.5	2	
Missing	17.1	27		0	0	

*The mean is calculated from answers on a Likert -type scale: 4=very important, 3=important, 2=somewhat important; 1=not important

Future status. When asked to predict future importance of the Internet/intranets to the success of their businesses, companies in general project that Internet/intranet usage would be even more important than today as illustrated in Table 7. All of the Fortune 500 projected that the Internet and/or intranets would be "more important" than today and a high percentage of Ohio companies projected in an similar manner as can be seen by the mean scores of 3.00 and 2.88 respectively.

Table 7
Future Importance of Internet/Intranets to the Success of the Business

Rating	Ohio Companies Percent	Ohio Companies Number	Mean	Fortune 500 Companies Percent	Fortune 500 Companies Number	Mean
More Important	67.2	107	2.88	100.0	19	3.00
Same Importance	7.0	11		0	0	
Less Important	1.3	2		0	0	
Missing	24.1	38		0	0	

*The mean is calculated from answers on a Likert -type scale: 3=more important, 2=same importance; 1=less important

Employee Usage of the Internet

The researchers attempted to determine the degree of usage according to job titles. Answers to Questions 7 through 10 and 16 through 19 provided the data. The data shows that upper-level administrators used the Internet and the intranet the most and the office support personnel the least. See Tables 8, 9, 10, and 11 for details. The data also illustrate that most companies report usage in the range of 29 to 1 percent.

Table 8

Total Employee Usage of the Internet and Intranet as Reported by Participating Businesses

Percent of Employees	Internet Companies Responding Percent	Internet Companies Responding Number	Intranet Companies Responding Percent	Intranet Companies Responding Number
90-100	4.5	8	10.2	18
89-70	2.8	5	7.9	14
69-50	4.0	7	10.2	18
49-30	16.4	29	13.6	24
29-1	55.4	98	14.7	26
Not Used	16.9	30	43.5	77
Totals	100.0	177	100.0	177

Table 9

Upper-level Administrators Usage of the Internet and Intranet as Reported by Participating Businesses

Percent of Employees	Internet Companies Responding Percent	Internet Companies Responding Number	Intranet Companies Responding Percent	Intranet Companies Responding Number
90-100	14.7	26	24.9	44
89-70	10.2	18	5.1	9
69-50	6.8	12	7.3	13
49-30	9.0	16	4.5	8
29-1	36.2	64	13.0	23
Not Used	23.1	41	45.2	80
Totals	100.0	177	100.0	177

Table 10

Middle-Level Managers/Supervisors Usage of the Internet and Intranet as Reported by Participating Businesses

Percent of Employees	Internet Companies Responding Percent	Internet Companies Responding Number	Intranet Companies Responding Percent	Intranet Companies Responding Number
90-100	8.5	15	20.9	37
89-70	6.8	12	10.2	18
69-50	8.5	15	5.6	10
49-30	10.7	19	5.6	10
29-1	41.2	73	11.3	20
Not Used	24.3	43	46.3	82
Totals	100.0	177	100.0	177

Table 11

Office Support Personnel Usage of the Internet and Intranet as Reported by Participating Businesses

Percent of Employees	Internet Companies Responding Percent	Internet Companies Responding Number	Intranet Companies Responding Percent	Intranet Companies Responding Number
90-100	4.0	7	22.0	39
89-70	3.4	6	7.9	14
69-50	5.6	10	5.1	9
49-30	11.3	20	7.3	13
29-1	40.1	71	11.9	21
Not Used	35.6	63	45.8	81
Totals	100.0	177	100.0	177

How Companies Are Using the Internet/Intranet

Statistics are important when change in curriculum and instruction is under consideration because historically business teachers have based what they do in the classroom in large part on the needs of the workplace. The data above illustrate that companies are using electronic communication, but how they are using this medium is a relevant concern for business educators who are intent on keeping curriculum and instruction current. Because of the relevance regarding how the Internet/intranets are used, the following question was included on the survey:

Employees in your organization use the following Internet/intranet applications: (circle all that apply)

A. Communicate with E-Mail
B. Browse the World Wide Web for information
C. Purchase products from other companies
D. Market/sell your organization's products
E. Manage inventory
F. Download software
G. Send and receive files
H. Train/Develop employees
I. Telecommunting (link office and home)
J. Publish Information
K. Virtual Store/Office
L. Link to our suppliers or other businesses with whom we work
M. Other ____________________

Table 12 reveals that "Communicate With E-Mail" and "Browse WWW for Information" are at the top of the list in importance. Percentages are divided for deeper consideration; the first percentage depicts percent of usage as compared to all companies responding to the question with either a "Yes" or a "No" answer. The second percentage is more meaningful than the first in that it shows the percent of Ohio company usage compared to all Ohio respondents and the percent of Fortune 500 usage compared to all Fortune 500 companies using the Internet and/or intranet to complete a task. An example based on E-Mail usage follows: 139 companies answered the question by choosing A—"Communicate With E-Mail" with either a "yes" or "no" answer. Of those 139 answers, 124 were "yes" answers; and of those, 107 were from Ohio companies resulting in a percentage of 77 (107/139). Calculation of the percentage of just Ohio companies communicating with E-Mail resulted in a percentage of 67.7 (107/158).

In order to elaborate on the "other" answers and to broaden the current information, the surveys were scrutinized. Companies often selected "other" to elaborate on one of the categories specified on the questionnaire. One company that answered "other" reported using its intranet to download/upload quotations, photos, etc.; and another reported using its intranet for gathering "real time data." "Today, the most common method in the way information is distributed involves users connecting to and pulling information from Internet Web Sites," write Frueling, Kerin, and Sebastian (1997). Further, one franchise reported using electronic communicating for franchiser communicating and data reporting. A fourth company wrote that it uses both Internet and intranet for sharing common files, forms, company information, training schedules, etc. Another reported that they "linked to customers." An individual in a large Fortune 500 firm wrote: "nearly every critical business process is on the intranet."

These answers add certainty to Frueling, Kerin, and Sebastian's (1997) statement that the traditionally paper and forms intensive offices of federal and state agencies are adapting technology to streamline many processes. For example, over 15 million of the 50 million returns the Internal Revenue Service received in 1997 were submitted electronically (p. 68).

To "do business on the Internet," a Web Site is a necessity. Therefore, these researchers were interested in what companies have Sites and how these companies are developing and maintaining their Pages.

Table 12
Rank Order of Internet/Intranet Applications Usage

	Statistics Based on Respondents Answering "Yes" to the Type of Use						
Type of Use	Used By Companies Yes	Used By Companies No	Ohio Companies Percentage	Ohio Companies Number	Fortune 500 Companies Percentage	Fortune 500 Companies Number	Statistical Difference Between Companies
Communicate With E-Mail	124	15	77.0/67.7	107	12.2/89.5	17	.968 (>.05)
Browse WWW For Information	110	30	66.4/58.9	93	12.2/89.5	17	.213 (>.05)
Send/Receive Files	96	43	57.6/50.6	80	11.5/84.2	16	.124 (>.05)
Download Software	81	58	46.8/51.3	65	11.5/84.2	16	.014 (<.05)*
Market Products	63	76	36.0/31.6	50	9.4/68.4	13	.030 (<.05)*
Link With Suppliers And Other Businesses	58	81	32.4/28.5	45	9.4/68.4	13	.011 (<.05)*
Publish Information	47	92	23.7/20.9	33	10.1/73.7	14	.001(<.05) *
Telecommuting	44	95	25.9/22.8	36	5.8/42.1	8	.292 (>.05)
Purchase Products	35	104	20.1/17.7	28	9.4/68.4	7	.207 (>.05)
Train Employees	31	68	18.0/15.8	25	4.3/31.6	6	.296 (>.05)
Manage Inventory	30	109	36.0/17.1	27	2.2/15.8	3	.509 (>.05)
Virtual Store/Office	8	131	3.6/3.2	5	2.2/15.8	3	.043 (<.05)*
Other	8	131	4.3/.03	6	1.4/10.5	2	.337 (>.05)

*Significant difference due to higher use by Fortune 500 companies.

Size and Type of Companies with a Web Site

Size of companies. Results of the current research illustrate that companies with 51 or more employees are more apt to have a Web Site than companies with less than 50 employees as illustrated in Table 13.

Types of companies. Results in Table 14 depict that utility and high technology companies are the most likely to have a Web Site; however, financial/insurance companies are also likely to have a Web Site as are retail and manufacturing firms. Many of the respondents said that their company fit into the "other" category, and 73.3 percent of these companies indicated that they have a Web Site.

Table 13
Size of Companies With a Web Site

Number of Employees	Number of Companies	With Web Site Percent	With Web Site No.	Without Web Site Percent	Without Web Site No.	Missing Percent	Missing No.
1-10	13	30.8	4	53.8	7	15.4	2
11-30	6	33.3	2	33.3	2	33.3	2
31-50	2	0		0		100.0	2
51-100	15	66.7	10	13.3	2	20.0	3
101-500	88	68.2	60	15.9	14	15.9	14
Over 500	50	80.0	40	12.2	6	8.2	4
Missing	3	33.3	1		0	66.7	2
Totals	177	66.1	117	17.5	31	16.4	29

Table 14
Types of Companies with a Web Site

Type of Company	Number of Companies	With Web Site Percent	With Web Site No.	Without Web Site Percent	Without Web Site No.	Missing Percent	Missing No.
Financial/Insurance	9	88.9	8	11.1	1	0	0
Manufacturing	82	61.0	50	25.8	17	18.5	15
Retail	12	66.7	8	0	0	33.3	4
Utilities	2	100	2	0	0	0	0
High Technology	3	100	3	0	0	0	0
Health/Medical	13	61.5	8	30.8	4	7.7	1
Transportation	8	50.0	4	12.5	1	37.5	3
Legal	2	50.0	1	50.5	1	0	0
Other	45	73.3	33	15.6	7	11.1	5
No Response	1	0		0		100	1
Totals	177	66.1	117	17.5	31	16.4	29

Web Page Development and Maintenance

> Administrating an Internet connection may require the addition of an Internet resource executive. This position is not strictly technical, the position requires experience in marketing, networking, the Internet, strategic planning, and an understanding of the firm's mission. The person in this position works with all the units within the organization in attempting to coordinate and promote activities on the internet. The Internet resource executive occupies a unique position from which to ensure that the divisions of a business organization share resources resulting in cost savings. While each division with an organization must have the autonomy to pursue its own objectives, all divisions need to work cooperatively when developing the company-wide Internet site (Davis & Walker, 1998, p. 101)

Companies are utilizing their own employees to develop Web Pages according to the current results—40.7 percent of the respondents report developing their Web Site internally. About one-fourth of the companies are using outsiders for this task. The same scenario exists for Web Site maintenance—44.1 percent of companies are maintaining their own Pages while only 19.2 percent are using outsiders.

Internet/Intranet Competencies Expected by Employers

The competency "keyboarding/typing" is still ranked high by employers with approximately 60 percent of employers desiring employees with this skill. Percentages in Table 15 are divided for thorough consideration in the same manner as Table 12 data. Answers show that possession of Internet/intranet competencies depends on the job classification—almost 47 percent of the respondents said that competencies expected are aligned to the job classification rather than aligned generally with Internet/intranet tasks. Almost 44 percent of the respondents reported expecting E-Mail knowledge and skill even though Web Sites were important to companies. The ability to create and publish these Pages was not high on the priority list of competencies at the time of hiring.

Training for Electronic Communication via the Internet/Intranets

Working in an information intensive environment requires skills very different from those required during the assembly-line era. Employees trained to meet the challenge of technological workplace will survive and be promoted in the next century. Typically, the information worker needs to use common computer applications such as word processing, spreadsheets, databases, presentation and graphics. However, today those computer applications need to be integrated with intranets and the Internet in order to access information, communicate using e-mail, teleconferencing and video conferencing and conducting business-to-business commerce on a global basis writes Frueling, Kerin, and Sebastian (1997). Question 23, "In your organization, Internet/intranet training is done: (check all that apply)

A. In-House
B. By external organizations
C. Via the Internet
D. Via the intranet
E. Self-taught
F. Other

attempted to determine how employees without Internet/intranet skills or with outdated electronic skills are learning how to utilize electronic communication while at work. Results shown in Table 16 illustrate that most companies are providing training through internal sources rather than through an external organization. A high percentage of employees are also learning how to use the Internet and/an intranet by teaching themselves, which substantiates what other researchers are writing (Frueling, Kerin, and Sebastian (1997). Interestingly, intranets and the Internet are not used a high percentage of the time for training.

Table 15
Rank Order of Internet/Intranet Competencies Employers Expect When Hiring Employees

Type of Skill	Total Companies	Ohio Companies Percent	No.	Fortune 500 Companies Percent	No.	Statistical Difference Between Ohio and Fortune 500
Keyboarding/Typing	83	52.5/46.2	73	7.2/52.6	10	.498 (>.05)
Depends on Job Classification	65	39.6/34.8	55	7.2/52.6	10	.581 (>.05)
Communicate with E-Mail	61	36.7/32.2	51	7.2/52.6	10	.408 (>.05)
Not Part of Hiring Process	36	22.3/19.6	31	3.6/26.3	5	.964 (>.05)
Browse the WWW For Information	29	17.3/15.1	24	3.6/26.3	5	.529 (>.05)
Download Software	20	13.7/12.0	19	.7/5.2	1	.223 (>.05)
Create and Publish Web Pages	7	5.0/4.4	7	0	0	.280 (>.05)
Other	2	1.4/1.2	2	0	0	.571 (>.05)

Table 16
Methods of Training Employees in Internet/intranet Usage

Method	Percentage/Number
In-House	58.8 (104)
Self-Taught	37.9 (67)
External Organization	20.9 (37)
Via the Internet	2.3 (4)
Via the Intranet	4.0 (7)

Conclusions

The seven research questions provide order for the conclusions.

Representative demographics: Entire Population

Question 1: What is the profile of businesses using the Internet and Intranets?

Manufacturing companies were the largest percentage of companies to respond to the questionnaire. Companies with employees from 101 to 500 also were the largest percentage of respondents. Companies located in Northeastern Ohio responded at a higher percentage than companies in any other region in Ohio. The results appear skewed to Northeastern Ohio. This was not intentional on the part of the researchers; however, companies in that region may have responded in high numbers because of the proximity to Kent State University and Youngstown State University, the major universities where the researchers are teaching.

Question 2: How important are the Internet/intranets to the success of businesses now and in the future?

After careful consideration of the data, these researchers conclude that the Internet and intranets are used in the workplace extensively. This statement is supported by these two facts: (a) 100 percent of Fortune 500 companies use the Internet and (b) 81.6 percent of Ohio companies use the Internet.

A second conclusion is that intranets are used at a significantly higher rate by Fortune 500 companies than by Ohio companies. This statement is supported by these facts: (a) 94.7 percent of Fortune 500 companies use intranets and (b) 53.2 percent of Ohio companies use intranets.

Another important conclusion is that Fortune 500 companies consider the Internet as "Important" to the success of their company; while Ohio companies consider the Internet as "Somewhat Important" to their success.

When reporting of importance of intranets, Fortune 500 companies again consider intranets as "Important." Ohio companies also consider intranets as "Important" to the success of their companies. Data also illustrate that the importance of both the Internet and intranet will be even more critical in the future.

The conclusion then is that while there is some difference in the mean scores, these tools will play an even more important role in the future. Moreover, these results show unquestionably that company intranets currently play a more important role in the success of companies than the Internet. Clearly the results reiterate Bartlett's (1998) prediction in the *NBEA Yearbook* that corporate intranets will be a key component for companies to compete in the 21st Century. Bartlett writes further that companies have seen the positive results of using the Internet and are using the power of Web technologies and LANS to enhance efficiency within an organization.

Role of Internet/intranets to the Future Success of Organizations. All Fortune 500 companies reported that the Internet/intranets will be "More Important" to the success of their companies, while 67.2 percent of Ohio companies reported the tools will be "More Important" to their success.

Question 3: What type and percentage of employees use the Internet/intranets?

A critical conclusion is that currently not all employees are using the Internet/intranets. Most companies report that 29 to 1 percent of their employees use these tools. Moreover, upper-level administrators use the tools the most while office support personnel use the tools the least. The Conference Board's 1996 statistics: "Of the companies reporting Internet access, 74 percent reported that the Internet was not available for all employees." This appears to agree with current findings that most companies report only 29 to 1 percent of their employees use the Internet/intranet. Even though the current research did not delve into the reasons for limiting usage, the Conference Board (1996) reported several reasons for limiting use:

1. Requirements of management approval
2. Limitations of network/hardware/support systems
3. Limitations on applications

Question 4: How are employees using the Internet/intranets?

"Communicate With E-Mail" is the task completed at the highest rate by all companies surveyed, while "Browsing the WWW for Information" was second. Using the Internet/intranet as a Virtual Office/Store evidently has not caught on as it was used at the lowest rate. Interestingly, though, small companies used this application at a higher rate than larger companies. Significant differences were found in five tasks:

1. Download Software
2. Market Products
3. Link with Suppliers and Other Businesses
4. Publish Information
5. Virtual Store/Office

These researchers conclude that the high percentage of companies using the Net currently to complete tasks provides further fuel to what others are saying about future use of the Internet. Managerial and marketing strategies should include establishing presence on the Internet advise Davis & Walker (1998). Wilder (1997) writing in *InformationWeek* reports that a recent survey suggests that by 1999, 39 percent of U.S. retailers plan to sell online, and according to Frueling, Kerin, and Sebastian (1997) consumers will be ready to purchase online since 15 percent of those consumers (47 million) have already bought products or information online. To facilitate many of the tasks completed on the Internet/intranet, Web Sites are a necessity. Therefore, Web Pages must be part of the standard operating procedures for companies. Size of company did make a difference in Web Site ownership. Only 13.6 percent (16) companies with 100 or fewer employees have a site, while 85.4 percent (101) companies with more than 100 employees have a Site. On the other side of the data, 51 percent of companies with 1 to 10 employees did not have Web Sites concluding, therefore, that the more employees a company has, the more apt they are to have Web Sites.

Nature of business conducted by companies also made a difference in Web Site ownership—88.9 percent (8) of financial/insurance companies have a Site. Approximately 67 percent of manufacturing, health/medical, and retail companies also have Sites. Even though the number of utilities and high technology companies responding was low, 100 percent of those types of companies have Sites. When determining what type of companies do not have a Site, Table 11 illustrates that Legal entities are just as likely not to have a Site as they are to have a Site. One-third of Health/Medical respondents reported not having a Site. Moreover, companies are developing and maintaining Web Pages in-house rather than utilizing outside sources. The researchers conclude, then, that the ability to create Web Pages is important.

Question 5: What Internet/intranet competencies are expected of prospective employees?

Keyboarding/Typing continues to be a competency expected by employers. One-fourth of the respondents do not consider Internet/intranet related skills when hiring; 37 percent reported that competencies "Depend on Job Classification." "Downloading Software" and "Create and Publish Web Pages" were ranked the lowest. The conclusion, therefore, is that the common competency of "Keyboarding/Typing" is a must, but the high-end technology skills, such as creating Web Pages, are not expectations at the outset of employment.

Question 6: How are employees trained for using the Internet/intranets?

Training is chiefly accomplished "in-house" or "self-taught" which substantiates what other researchers are writing (Frueling, Kerin, and Sebastian (1997). A insignificant amount of training is accomplished via Internet/intranets concluding that those desiring employment involving the Internet/intranets need to possess lifelong learning ability and the ability to read and interpret documentation either via written or electronic mediums.

Implications

Question 7: What are the implications of Internet/intranet usage for Business Education?

Educational institutions believe in preparing students for a future workplace where technology will play an enormous role in "getting the job done." The Policies Commission for Business and Economic Education stated in *Policy Statement 53, This We Believe About the Role of Business Education in Technology*: "Business Education will need to adapt to continuous advancements in technology; and the discipline's future will be based, in large part, on the role it assumes in addressing technological changes."

According to the data gathered, 83.1 percent of the wide variety of businesses surveyed are currently using the Internet/Intranet. A U. S. Commerce Department report available online at www.ecommerce.gov, states that Internet traffic is doubling every hundred days, and electronic commerce should reach $300 billion by 2002. Existing and emerging Internet technologies are impacting the way employees work in businesses worldwide.

It is evident that business educators must provide their students, America's future employees, with the knowledge, skills, and aptitudes necessary to become Internet savvy.

Since the top five most frequently reported uses of the Internet are communicating with e-mail, browsing the World Wide Web for information, sending/receiving files, downloading software, and marketing products, these Internet features should be included in the business education curriculum.

1. The highest reported business use of the Internet/intranet is for e-mail. Hinton (1997) reports that over 15 billion e-mail messages are sent each month. E-mail's popularity is attributed to its speed, convenience, and relatively low cost. Students need to be aware of how to use e-mail locally and abroad following basic rules, guidelines, and cautions; how to send and receive attachments; how to use the address book, listservs, and other multiple destination addresses; and how to save and organize important messages.
2. According to the popular online Komando Newsletter, there are over 320 million pages on just the World Wide Web portion of the Internet. Searching through Web Pages can be like trying to find a needle in a haystack. Therefore, being able to search efficiently with knowledge of the available search engines and Boolean operators and proper search strings saves valuable time in capturing pertinent information; and in business, time is money. Students need to know how to conduct simple and complex searches; how to organize Web Pages with bookmarks, and how to organize bookmarks into folders.
3. Above all, students need to be encouraged to be inquisitive, systematic, well organized, and focused on the problem at hand. In order to practice these traits, students could form teams to investigate the Internet's current hot topics whatever they may be. At the present time they could include the differences among the Internet, Intranets, and Extranets; Internet security issues; audio Internet conferencing; electronic cash, and avoiding viruses.
4. The average person reads or hears "Visit us at our Web Site" many times a day. It is interesting to note that 66.1 percent of the respondents reported having a Web Site. Being able to create and publish Web Pages was not high on the priority list of competencies at the time of hiring, but this skill is nevertheless a market niche. Actually, a whole new industry has grown up around the Web using programmers to build Sites and computer literate graphic designers to create attractive Home Pages.
5. Downloading software: Many businesses put their site licensed software on their intranets for the convenience of their employees to download as needed. With Microsoft Office 97 applications, you can access a company's Intranet or the Internet from inside Word, Excel, PowerPoint, or Access as well as publish documents, spreadsheets, presentations, and database information to HTML documents for viewing on an Intranet or the Internet. For practice in downloading, students can be given the opportunity to download shareware, freeware, or Public Domain software.

Additional implications for business education emerge from the findings of the study. Companies who use the Internet have a competitive edge over those who do not, and students who have Internet knowledge, skills, and aptitude have a competitive edge over students who do not, as more and more businesses move toward Internet technology.

Business educators must stay abreast of the changing skills required in the workplace and empower their students to pursue the process of lifelong learning.

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Identifying Personality Types of High School Business Education Students: Comparing Business Education Students with Non-Business Students

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Abstract

Knowledge of one's personality type and that of individuals one interacts with is important to understand how and why certain decisions are made. For teachers and students, this knowledge is important to understand how students learn and function. This study was performed to establish if common personality types existed in secondary business education students and if personality type of business education students differed from non-business education students. The findings indicate high school business education students are not clustered in one specific personality types and business education students were not significantly different from non-business education students.

Introduction

Students, like individuals, are different in numerous ways. Personality type, or preference, is one method of characterizing the way individuals differ. One's personality type influences the way one functions in daily life. Therefore, an awareness of one's preference, specifically how it relates to daily life functions can be valuable information for all individuals to improve individual effectiveness. Since students are constantly interacting with teachers, peers, and family members, the knowledge of one's preference is essential to interact effectively. The knowledge of the individual's preference helps teachers to understand how and why students make some of their decisions. These preferences influence students learning styles, achievement, extra-curricular activities, course selection, and preferred teaching styles. Table 1 shows the characteristics of personality type preferences in indexed pairs.

Many studies have revealed relationships between personality type and numerous other characteristics including career management, career counseling, management, leadership, teams, academic achievement, learning styles, teaching styles, health, stress, and coping (Hammer, 1996). Literature has identified the existence of common characteristics associated with similar personality types and temperaments. However, few of these studies examined secondary students and even fewer, secondary business education students.

Business and industry is operating in an environment with an influx of technological advances, which has developed a global economy. Business educators are challenged with the mission of preparing students to function effectively in this new environment. From 1990 to 1993, businesses spent more on communication and computer technology than on all other capital equipment. With this investment business educators must also invest in examining the best way to educate students with the skills needed to operate this changing technology.

McPherson (1995) identified personality type awareness as an important aspect in training. To function better, employees or students need to be aware of their own personality type and the characteristics of other personality types. Hence, identifying commonalties in personality type of business education students will aid business educators. Business educators would be aware of teaching styles, learning styles, in-service training, and interpersonal communication that more students prefer to use in and out of the classroom. Motely and Smith (1989) state that temperament information is exchanged through interpersonal communication during informal and structured encounters. This supports the idea that personality types can be used to predict behavior.

Previous literature has identified personality type research using the Myers-Briggs Type Indicator (MBTI) with business educators. A limited amount of current research has been found that examines high school business education students' personality types. Vogt and Holder (1989) examined 47 business education students in a post-secondary institution. They found that the personality type of ESTJ and ESFJ (refer to Table 1 for descriptors) appeared at a more frequent rate than others. Post-secondary marketing education students also demonstrate the same two personalities with more frequency than others do, according to Elias and Elias (1990). ESTJ and ESFJ were the highest frequency of personality types observed. Waner and Echternacht (1993) conducted a regional study of business educators who were members of Delta Pi Epsilon (DPE), and identified a predominance of four personality types in the group. The majority of the respondents were ISTJ, followed by ESTJ. There were equal numbers of ISFJ and ESFJ. The studies on personality type among business educators (Vogt & Holder, 1989, Elias & Elias, 1990; Warier & Echternacht, 1993) have reported finding similar results with slight variations.

Table 1
Characteristics of Personality Type Indexes in Pairs

Extroverts (E)	Introverts (I)
Sociability	Territoriality
Interaction	Concentration
External	Internal
Breadth	Depth
Extensive	Intensive
Multiplicity of relationships	Limited Relationship
Expenditure of energies	Conservation of energies
Interest in external events	Interest in internal reaction
Sensing (S)	**Intuitive (N)**
Experience	Hunches
Past	Future
Realistic	Speculative
Perspiration	Inspiration
Actual	Possible
Down-to-earth	Head-in-clouds
Utility	Fantasy
Fact	Fiction
Practicality	Ingenuity
Sensible	Imaginative
Thinking (T)	**Feeling (F)**
Objective	Subjective
Principles	Values
Policy	Social values
Laws	Extenuating circumstances
Criterion	Intimacy
Firmness	Persuasion
Impersonal	Personal
Justice	Humane
Categories	Harmony
Standards	Good or bad
Critique	Appreciate
Analysis	Sympathy
Allocation	Devotion
Judging (J)	**Perceptive (P)**
Settled	Pending
Decided	Gather more data
Fixed	Flexible

Note. Table from *Please Understand Me* by Keirsey and Bates (1984)

Purpose of Study

The present study examined the personality type of business education students and general education students. This study explored if commonalties exist between the business education students. The study also sought to identify if there is a significant difference in the proportions of personality types among business educators compared to the general population. The personality types that were examined fall under the 16 Myers-Briggs types. The types are identified by preferences in degrees of one or the other, not in pairs of one or the other (see Table 1).

Methodology

Participants

The target population for the study was defined as high school students in Pennsylvania. Two specific subgroups were examined in this population. high school students currently enrolled in business education courses and high school students not currently enrolled in business education courses. The sampling plan for the study included the following steps: (1) two teachers (one a Business Education teacher and one an English teacher) in one high school were identified that were willing to participate in the study; (2) All of the business courses taught by the participating teacher were included in the study, specifically Typing 1, Office Technology, Business Math and World of Business. The courses taught by the English teacher participating in the study included Freshman English, Introduction to Writing, and Theme Writing, and (3) All students enrolled in the selected teachers' sections of these courses were selected as members of the research sample. The sample included students at grade levels 9-12. A total of 60 business education students and 61 English students were selected to participate in the study.

Instruments

Two instruments were used to collect data for the study. One was the Myers-Briggs Type Indicator Form-G . This instrument has been identified as both a valid and reliable instrument for assessing personality type. The second instrument was a researcher developed demographic form designed to collect selected personal and academic information on the participants.

Data Collection

To collect the data for the study, the researcher first arranged a time that was mutually acceptable for both of the teachers participating in the study. On the prearranged day, the researcher went to the school, explained the data collection procedures to the classroom teachers, and remained at the school to be available for assistance to either teacher if the need arose.

Results

The objectives of the study were to describe and compare high school students not currently enrolled in a business education course to students that are currently enrolled. The business education students and non-business education students participating in this study were similar on their demographics except on the mean age and gender. On the variable age, the business education students had a mean age of 16.6 years, while the non-business education students had a mean age of 15.0 years. Of the business education students 36.7% were male and 63.3% were female, while the non-business education students were 53.3% male and 46.7% female. These percentages are representative of typical business education enrollment.

On the variable of personality type, the largest numbers of business education students were in the following two types as measured by the MBTI: ENFP (20%) and ESFJ (11 %), see Table 2. The two largest groups of non-business education students were in the ESFP (19.7%) and ENFP (13.1%). The group which showed the greatest discrepancy between the two groups of students was the ESFP which made up 19.7% of the non-business education students and only 8.3% of the business education group.

Table 2
Frequencies of Personality Types of Respondent (N= 12 1)

ISTJ Business Students (3)5.0% General Students (4)6.6%	ISFJ Business Students (2)3.3% General Students (2)3.3%	INFJ Business Students (2)3.3% General Students (3)4.9%	INTJ Business Students (0)0.0% General Students (1)1.6%
ISTP Business Students (3)5.0% General Students (6)9.8%	ISFJ Business Students (6)10.0% General Students (0)0.0%	INFP Business Students (4)6.7% General Students (1)1.6%	INTP Business Students (1)1.7% General Students (3)4.9%
ESTP Business Students (5)8.3% General Students (7)11.5%	ESFP Business Students (5)8.3% General Students (12)19.7%	ENFP Business Students (12)20.0% General Students (8) 13.1%	ENTP Business Students (2)3.3% General Students (6)9.8%
ESTJ Business Students (6)10.0% General Students (3) 4.9%	ESFJ Business Students (7)11.7% General Students (3)4.9%	ENFJ Business Students (2)3.3% General Students (1)1.6%	ENTJ Business Students (0)0.0% General Students (1)1.6%

Implications and Recommendations

Secondary business education students have a diverse background of personality types. Unlike other post-secondary studies, high school business education students are not as clustered into certain MBTI types. Business education students had the same dominant type preference as non-business education students of ESFP.

These findings tell business teacher educators that business education students are not significantly different in personality type from other non-business education students. Business education students fell within 14 of the 16 types, which presents more empirical data that teachers must take measures to reach students with a diversity in preferences. It is essential for teachers to be aware of these preferences and make certain adjustments when in the classroom to insure a methodology that will reach all students.

The research supports the importance of teachers going outside of their own learning styles and preferences when teaching to accommodate all students in the classroom. Business education students do not have the same preferences and learning styles. Furthermore, the general population of students has a wider range of preferences. A practical suggestion for the classroom teacher is to use as many teaching strategies as possible. These methods or techniques may include lecture, discussion, participation, cooperative learning, multimedia, computer based, and innovative ideas.

Further research is needed to explain the personality preferences of business education students and other characteristics. Suggested areas of further study include:

1. Areas of study within business education need to be compared to see if commonalties exists among students in computer technology classes, office procedures, cooperative education, and marketing.
2. Other vocational areas need to be examined to see if commonalties in personality type exist.
3. Self-directed learning needs to be compared with personality type in high school business education students.

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The Influence of Social Cognitive Career Theory on African American Female Adolescents' Career Development

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Abstract

The purpose of this exploratory correlational study was to determine the applicability of social cognitive career theory (SCCT) to African American female adolescents' career development. Specifically, the objectives were to determine the correlation between (a) career self-efficacy and vocational interests, (b) career self-efficacy and career consideration, and (c) vocational interests and career consideration for African American female adolescents. The high school population consisted of 157 African American females from a Midwest metropolitan city school district. On an aggregate level, findings revealed no statistically significant differences between career self-efficacy and vocational interests or career self-efficacy and career consideration. A statistically significant relationship was found between vocational interests and career consideration.

Introduction

Social and economic patterns in conjunction with innovative technologies have created a society of challenging new realities for American youth. Challenging new realities of education prerequisites, work complexities, technology enhancements, economic outlooks, demographic trends, and family structures require adolescents to exercise considerable control over their endeavors. These diverse factors affect personal efficacy beliefs, which contribute to the formation, selection, and management of educational pursuits and career paths during rapidly changing societal conditions.

Embedded within Bandura's general social cognitive theory is the self-efficacy belief system that involves implementing action based on confidence in knowledge. Self-efficacy refers to belief in one's capability to plan and implement action required to complete specific tasks (Bandura, 1986). An extension of Bandura's (1986) general social cognitive theory, social cognitive career theory (SCCT) as proposed by Lent, Brown, and Hackett (1994), connects three important aspects of career development: (a) the formation of career interest, (b) the selection of academic and career choice options, and (c) the performance and persistence in educational and occupational pursuits.

Purpose and Problem

Research has not focused on the academic and career development of African American females (Evans & Herr, 1991; Hackett & Byars, 1996), resulting in little knowledge of the psychological and sociological process of African American female's career development. Even though the role of efficacy beliefs has been implied in the literature on African Americans' career and academic behavior, much more research is needed (Brown, 1995; Hackett, Betz, Casas, & Rocha-Singh, 1992; Post-Kammer & Smith, 1986; Post, Stewart, & Smith, 1991).

The purpose of the exploratory study was to determine (a) the level of career self-efficacy, (b) the degree of vocational interests, and (c) the range of career consideration among African American female adolescents. Career self-efficacy research can provide insight into how business educators can strengthen students' academic and career efficacy beliefs. Enhanced efficacy beliefs effectively increase students' educational achievements and career decision-making skills.

The research answered the following questions:

1. Which occupations generate the highest level of career self-efficacy among African American female adolescents?
2. Which occupations generate the greatest degree of vocational interest among African American female adolescents?
3. Which occupations generate the most common range of career consideration among African American female adolescents?

Methodology

Population and Sample

Permission to conduct research was obtained from the research and testing department of a large metropolitan school district located in the central region of the United States. Three high school principals from two comprehensive high schools and one magnet high school granted permission to collect data from the African American female population. Random selection was used to identify 100 African American female students from each of the two comprehensive high schools to participate in the study. All 100 African American female students from the magnet school were selected to participate. A sample size of 300 represented 43% of the 692 identified as the total African American female population in the metropolitan school district.

A total of 171 participants completed the questionnaire packets and produced 157 (92%) usable questionnaires. Usable questionnaires were received from 43 (27.4%) seniors, 60 (38.2%) juniors, and 54 (34.4%) sophomores. Students ranged in age from 15 to 18 years old; 20 (12.7%) were 15 years olds, 52 (33.1%) were 16 years old, 60 (38.2%) were 17 years old, and 25 (15.9%) were 18 years old.

Instruments

A pilot study was conducted to establish reliability and validity for all four instruments. Twenty-one high school students enrolled in a business skills course were the pilot study participants. Seven seniors, 11 juniors, and 3 sophomores provided feedback that contributed to instrument revisions.

Participants completed an investigator constructed Background Questionnaire that consisted of nine questions about age, grade classification, education expectations, academic intentions, and career plans. The investigators also constructed three career assessment questionnaires. Each questionnaire listed the same 70 occupations selected from the 1997-1998 edition of the *Occupational Outlook Handbook* compiled by The United States Department of Labor. The selected list of occupations appears in Table 1. Using a 5-point Likert-type scale, respondents rated their (a) confidence in completing the education and training on the Career Self-efficacy Scale, (b) career interests on the Vocational Interests Scale, and (c) range of consideration on the Career Consideration Scale.

Cronbach's alpha, based on the average inter-item correlation, is the internal consistency model displayed in Table 2.

Findings

The 70 occupations listed on the career self-efficacy, vocational interests, and career consideration instruments were segmented into three categories by gender: traditionally female dominated, traditionally gender neutral, and traditionally male dominated. The same 70 occupations were also segmented into two categories by the required education level: secondary education required and postsecondary education required. Table 3 provides the means, standard deviations, and ranges of scores for the three study scales.

Respondents had a higher career self-efficacy mean score for traditionally female-dominated occupations. Mean scores for career self-efficacy categorized by education level required revealed a higher score for secondary education than for postsecondary education. Respondents expressed higher vocational interest in traditionally gender-neutral occupations. Vocational interests mean scores were higher for occupations that require postsecondary education than for those that require secondary education. Career consideration of traditionally gender-neutral occupations had the highest mean score. Career consideration mean scores were higher for occupations that require postsecondary education when compared to those occupations that require only a secondary education.

Table 1
Listing by Gender

Occupation	Education	% Female	% Black
Female-Dominated			
Secretary	Secondary	98.6	9.3
Day Care Provider	Secondary	98.5	8.8
Dental Hygienist	Post-Secondary	98.2	-
Receptionist	Secondary	96.9	9.8
Licensed Practical Nurse	Post-Secondary	95.3	14.0
Bookkeeper	Secondary	91.9	5.6
Manicurist	Post-Secondary	91.1	10.2
Beautician	Post-Secondary	91.1	10.2
Dietitian	Post-Secondary	90.2	29.3
Bank Teller	Secondary	90.1	9.7
Data Entry Clerk	Secondary	84.5	17.0
Paralegal	Post-Secondary	82.9	7.5
Housekeeper	Secondary	82.7	29.6
Librarian	Post-Secondary	81.8	7.9
Flight Attendant	Secondary	81.2	10.2
Office Clerk	Secondary	80.8	12.1
Cashier	Secondary	78.1	15.6
Waitress	Secondary	77.9	4.8
BlackTravel Agent	Secondary	75.8	5.3
Teacher	Post-Secondary	74.4	9.8
Clinical Lab Technician	Post-Secondary	73.3	16.1
Counselor	Post-Secondary	69.8	15.0
Social Worker	Post-Secondary	68.5	22.6
Gender-Neutral			
Salesperson	Secondary	65.3	11.4
Physical Therapist	Post-Secondary	61.9	3.8
Psychologist	Post-Secondary	61.4	22.6
Fashion Designer	Post-Secondary	57.5	2.1
Urban Planner	Post-Secondary	56.9	9.0
School Administrator	Post-Secondary	56.9	10.2
Hotel Manager	Post-Secondary	56.7	9.2
Accountant	Post-Secondary	56.0	8.8
Newspaper Reporter	Post-Secondary	55.7	6.5
TV Anchor	Post-Secondary	55.7	6.5
Management Analyst	Post-Secondary	54.4	3.9
Financial Manager	Post-Secondary	54.0	6.5
Surgical Technologist	Post-Secondary	52.5	9.4
Florist	Secondary	50.4	1.7
Artist	Secondary	49.4	6.0
Professional Dancer	Secondary	49.4	6.0
Politician	Post-Secondary	47.7	12.9
Manager (Corporation)	Post-Secondary	43.8	6.9
College Professor	Post-Secondary	43.5	6.5
Pharmacist	Post-Secondary	42.6	6.8
Actress	Secondary	41.3	10.2
Biologist	Post-Secondary	39.0	4.7
Advertising Executive	Post-Secondary	37.8	2.9
Public Relations Manager	Post-Secondary	37.8	2.9

(Table 1 continued)

Occupation	Education	% Female	% Black
Male Dominated			
Musician	Secondary	34.2	12.8
Professional Athlete	Secondary	30.9	5.6
Computer Programmer	Post-Secondary	30.8	5.3
Lawyer	Post-Secondary	29.5	3.5
Judge	Post-Secondary	29.0	3.4
Photographer	Post-Secondary	28.6	6.8
Chemist	Post-Secondary	28.6	3.7
Postal Service Worker	Secondary	28.3	14.1
Physician	Post-Secondary	26.4	4.5
Farmer	Secondary	23.1	0.5
Landscape Gardner	Secondary	17.5	6.0
Security Guard	Secondary	17.3	24.1
Military Personnel	Secondary	14.0	30.0
Dentist	Post-Secondary	13.7	1.2
Police Officer	Secondary	12.9	12.6
Electronic Technician	Post-Secondary	12.7	8.2
Clergy	Post-Secondary	12.3	11.2
Engineer	Post-Secondary	8.5	4.2
Electrician	Post-Secondary	2.5	7.9
Paramedic	Post-Secondary	1.8	13.8
Pilot	Post-Secondary	1.4	1.4
Carpenter	Post-Secondary	1.3	6.2
Auto Mechanic	Post-Secondary	1.2	7.6

**% Female = African-American, White, and Hispanic Females*
**% Black = African-American Females and Males*

Table 2
Internal Consistencies of Study Scales

Scales	Alpha Coefficient
Career Self-efficacy	.97
Female	.94
Gender Neutral	.91
Male	.89
Secondary Education	.90
Postsecondary Education	.96
Vocational Interests	.94
Female	.85
Gender Neutral	.85
Male	.87
Secondary Education	.87
Postsecondary Education	.91
Career Consideration	.92
Female	.86
Gender Neutral	.83
Male	.78
Secondary Education	.87
Postsecondary Education	.88

Table 3
Descriptive Data on Variables

Scales	n	M	SD	Range
Career Self-efficacy	157	3.53	.72	1-5
Female	157	3.86	.82	1-5
Gender Neutral	157	3.57	.75	1-5
Male	157	3.16	.73	1-5
Secondary Education	157	3.62	.74	1-5
Postsecondary Education	157	3.48	.75	1-5
Vocational Interests	157	2.65	.56	1-5
Female	157	2.58	.66	1-5
Gender Neutral	157	2.88	.62	1-5
Male	157	2.47	.62	1-5
Secondary Education	157	2.40	.61	1-5
Postsecondary Education	157	2.78	.60	1-5
Career Consideration	157	1.90	.49	1-5
Female	157	1.88	.61	1-5
Gender Neutral	157	2.02	.58	1-5
Male	157	1.79	.48	1-5
Secondary Education	157	1.73	.57	1-5
Postsecondary Education	157	2.00	.51	1-5

Table 4 presents the 20 occupations that generated the highest levels of career self-efficacy among African American female adolescents. Fourteen of the 20 (70%) occupations with the highest mean scores were traditionally female occupations. African American female adolescents were highly efficacious about one traditionally male occupation (photographer). More confidence was expressed for 12 of the 20 (60%) occupations that require a secondary education.

Table 5 presents the 20 occupations that displayed the highest degrees of vocational interests among African American female adolescents. Ten of the 20 (50%) occupations with the highest mean scores were gender neutral occupations. African American female adolescents were highly efficacious about five traditionally male occupations and five traditionally female occupations. Greater confidence was expressed for 17 of the 20 (85%) occupations that require postsecondary education.

Table 6 presents the top 20 careers considered by African American female adolescents. The range of career consideration among the top 20 occupations is representative of all three gender categories. Eight of the 20 were gender neutral, six were traditionally female, and six were traditionally male dominated occupations. More consideration was given by the African American female adolescents to 16 of the 20 (80%) occupations that require postsecondary education.

Table 4
Level of Career Self-efficacy

Occupation	Mean	SD
1.Day Care Provider	4.31	1.10
2.Cashier	4.31	1.15
3.Photographer	4.23	1.05
4.Waitress	4.18	1.33
5.Counselor	4.16	1.08
6.Secretary	4.13	1.15
7.Manager (Corporate)	4.06	1.17
8.Licensed Practical Nurse	4.04	1.18
9.Bank Teller	4.03	1.16
10.Salesperson	4.03	1.26
11.Fashion Designer	4.03	1.11
12.Hotel Manager	4.01	1.20
13.Receptionist	4.01	1.24
14.Travel Agent	4.00	1.20
15.Social Worker	3.99	1.27
16.Florist	3.93	1.24
17.Teacher	3.93	1.38
18.Housekeeper	3.93	1.42
19.Office Clerk	3.92	1.28
20.Flight Attendant	3.87	1.29

Table 5
Degree of Vocational Interest

Occupation	Mean	SD
1. Fashion Designer	3.77	1.13
2. Manager (Corporation)	3.64	1.20
3. Actress/Actor	3.52	1.27
4. Photographer	3.51	1.15
5. Lawyer	3.47	1.36
6. Computer Programmer	3.45	1.30
7. Advertising Executive	3.40	1.13
8. Counselor	3.38	1.29
9. Physical Therapist	3.37	1.25
10. Physician	3.33	1.32
11. Psychologist	3.27	1.34
12. Beautician	3.24	1.30
13. Licensed Practical Nurse	3.21	1.39
14. Financial Manager	3.15	1.23
15. Day Care Provider	3.11	1.33
16. Judge	3.06	1.44
17. Professional Dancer	3.03	1.45
18. Pharmacist	2.96	1.32
19. Social Worker	2.94	1.45
20. Accountant	2.92	1.29

Table 6
Range of Career Consideration

Occupation	Mean	SD
1. Lawyer	2.96	1.59
2. Fashion Designer	2.64	1.34
3. Counselor	2.62	1.40
4. Physician	2.62	1.56
5. Computer Programmer	2.61	1.53
6. Beautician	2.61	1.53
7. Licensed Practical Nurse	2.54	1.46
8. Day Care Provider	2.50	1.47
9. Physical Therapist	2.47	1.41
10. Teacher	2.45	1.48
11. Photographer	2.42	1.42
12. Psychologist	2.41	1.52
13. Social Worker	2.38	1.50
14. Manager (Corporation)	2.34	1.51
15. Musician	2.32	1.49
16. Actress	2.27	1.31
17. Advertising Executive	2.24	1.35
18. Professional Dancer	2.21	1.49
19. Accountant	2.17	1.34
20. Judge	2.16	1.52

Conclusions

1. African American female adolescents have more confidence in their ability to complete the education and training required by traditionally female dominated occupations.
2. African American female adolescents possess a higher level of career self-efficacy for occupations that require a secondary education.
3. African American female adolescents expressed a higher degree of vocational interest in gender neutral occupations and occupations that require postsecondary education.
4. The majority of the careers considered by African American female adolescents require postsecondary education, however the range is disbursed fairly equally among all three gender categories.

Recommendations

A similar study that examines the impact of gender and cultural differences, as well as effects of socialization and economic circumstances on career self-efficacy beliefs, vocational interests, and range of careers considered should be conducted. Knowledge of gender, cultural background, social attitudes, and social-economic status distinctions can be incorporated into classroom instruction and enhance career development activities.

A study that examines the relationship between career self-efficacy beliefs, vocational interests, and range of careers considered before and after a career exploration program is needed. Facilitating individuals in identifying career self-efficacy beliefs and their relationship to vocational interests and careers considered may help remove barriers in the career development process of adolescents.

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Informed Decisions in Business: Integrating Science and Business Education for the Next Millenium

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Abstract

Today's students are requesting instructional strategies that are relevant and practical to preparing the workforce of the 21st Century. Yet, integrating business education and science education may provide such a strategy to train students to solve problems and make decisions. Therefore, this study was designed to evaluate students' perceptions of the use of electronic communication in selected business and science education classes. Specifically, the research addressed: Do business and science education students perceive electronic communication as a relevant and practical teaching/learning tool in preparing them for the 21st century workplace?

Introduction

The mismatch that exists between education and real-life requirements has surfaced as a major concern related to economic growth and quality of life in the United States of America. This mismatch has emerged from a curriculum designed for a world long past—a world where workers performed menial repetitive tasks under the direction of autocratic management. In this type of workplace, the only "thinkers" needed were management (Drucker, 1989). Workers in this environment needed only to concern themselves with a few tasks, and those tasks often remained constant throughout a worker's career. Indeed, it may have been possible for workers to retire without seeing any changes in the workplace. Most education practices prepared workers very well for this type of environment, where innovation was secondary to obedience. Yet, advances in technology, shifts in the labor force, and accelerated demands for up-to-date information presented in different formats have results in an emerging need for workers to be able to think and solve problems, i.e., make decisions—not the typical worker described by Drucker. Thus, the ability to think creatively and solve problems has emerged as a tool needed by almost every American worker in all types of organizations and at every level in the hierarchy of these organizations (Carnevale, Gainer, & Meltzer, 1990, SCANS, 1991). Educated workers who are thinkers, problem-solvers, communicators, and decision makers will be in demand, and employees who know how to apply their workforce preparedness skills and knowledge in unpredictable circumstances will fare better (Hall & Hicks, 1995). Therefore, workforce preparedness educators as well as educators from other disciplines are being challenged to provide instruction that adequately prepares entry-level workers for today's work environment.

Not only are educators being challenged by business and industry, but also they are being challenged by today's students. Students, today, want a relevant, practical curriculum that prepares them for entry into the workplace (Treichel, 1991). Thus, educators need to incorporate practical examples of real-world activities in their education programs to teach students to solve problems and make decisions. One approach that has been suggested to provide this relevant, practical, and real-world like training for developing problem solving and decisions making skills is telecommunicating via electronic communication (Electronic communication). Conducting class projects using Electronic communication allows students to cooperate with others of similar interests around the globe to answer important questions and solve real-world problems (Beasley, 1993). According to Beasley (1995), Electronic communication allows diverse groups with differing cognitive abilities, skill levels, ideas, and beliefs to work together to reach a common goal—to complete a project that requires simulating a typical real-world like situation where students develop a solution. Therefore, the use of electronic communication in classroom instruction is likely to provide realistic, practical learning exercises today's students.

The Problem

Today's students must be taught using instructional strategies that are perceived as being relevant and practical as well as preparing them for the workplace. Moreover, integrated learning activities between and among disciplines are likely to provide appropriate instructional strategies to develop the ability to solve problems and make decisions that today's students perceive as relevant and practical. Therefore, this study was designed to evaluate students' perceptions of the use of telecommunications in selected business and science education classes toward telecommunications' relevance in providing them a practical learning environment for the world of work. Specifically, the research addressed: Do business and science education students perceive electronic telecommunication as a relevant teaching/learning tool in preparing them for the workplace?

Electronic Communication

Many authors have described situations where the use of electronic communication has proved valuable when integrated into classroom instruction (e.g., Andrews. 1995; Bartel, 1995; Joyner, Arnold, Lush, Kandies, & Truell, 1996; Lopez & Nagelhout, 1995; Mabrito, 1995; Peek, Roxas, & Peek, 1995; Poling, 1994; Quible & Ray, 1995; and Sutton, 1995). According to Poling (1994), for instance, instructors should take advantage of electronic communication and use it for both administrative and classroom functions. In addition, electronic communication may be a very effective tool in answering student questions, counseling students, assigning course projects, posting class announcements, and administering an occasional quiz. Several writers have described procedures for successfully integrating the use of electronic communication into communication courses (e.g., Andrews, 1995; Bartel, 1995; Joyner, Arnold, Lush, Kandies, & Truell, 1996; Lopez & Nagelhout, 1995; Mabrito, 1995; Peek et al, 1995; Poling, 1994; Quible & Ray, 1995; and Sutton, 1995). Most of the writers agree that electronic communication assisted students with writing skills as well as provides instructional opportunities to develop decision-making skills.

Peek et al. (1995) described electronic communication as a tool to facilitate cooperative learning when discussing ethical issues. Students from two universities were team to discuss via electronic communication a videotaped vignette from the Arthur Andersen Business Ethics Program. BY employing this approach, students developed a variety of communication and technical skills through the use of electronic communication. Prior to sending any electronic messages, students viewed the videotape and listened to peers to gain full understanding of the ethical issues and related alternatives. The use of electronic communication to complete this assignment required that all students have a basic understanding of word processing, network access, and an electronic communication system. Ultimately as described by Peek et al (1995), the project simulated a realistic communication process where informal discussion leads to a formal written document based on electronic messaging. Since the Internet is world wide, electronic messaging and related projects could very easily broaden communications' courses from a national or regional scope to an international scope. Further, students who participated in this project considered the instructional activity as relevant to their preparation to enter the workforce.

Bartel (1995) described an instructional setting where electronic communication was used students to examine their strengths and weaknesses in different communication channels. In the Communicating Within Organizations class at Boston University, students used various communication channels—public speaking, written feedback, and active listening in the classroom. After communicating via the different channels, students evaluated the effectiveness of the channel in regard to perceptions of the feedback though each channel. Most of the students upon entering the class believed face-to-face communication would be the most effective way to provide feedback. However, after the experience, students were much more willing to evaluate the different communication channels and to think critically in determining which method of communication would be most effective in providing feedback. Students who completed this course realized that electronic communication could bring a realistic and practical dimension to the classroom as well as prepare them for the world of work.

According to Quible and Ray (1995), the millions of computers connected via electronic communication will have had and will continue to have a profound impact on written business communication and the manner in which information for the decision making process is collected. Yet, students may also use electronic communication to gather information when preparing reports, to communicate with fellow students at both on- and off-campus locations, or to seek employment. Quible and Ray recommend the use of communication-oriented, decision-making activities to provide students with an opportunity to use electronic communication as a tool for locating resources to bring an element of relevancy from the world of work into the classroom. As the number of electronic communication resources currently available to the classroom instructors is constantly increasing, courses should be designed to include the use of electronic communication as an instructional strategy to provide the relevant and practical education that today's students are demanding.

Mabrito (1995) described an approach for using electronic communication discussion groups as a process for planning and for writing business documents. In class, Mabrito (1995) used an electronic communications bulletin board as a medium for students to discuss writing assignments. Electronic communication text, discussed by students via the electronic communications bulleting board, was analyzed by students to determine how electronic-based communication differed from written and/or oral communication. After analyzing the text, students were able to draw conclusions regarding the strengths and the weaknesses of electronic communication. Students were then requested to outline their observations and conclusions in a memo describing what they, the students, would consider effective electronic communications strategies. An interesting result of the process was that students were able to develop insight into what constitutes effective electronic communication and the role electronic communication plays in an organization through this applied approach. Again, electronic communication provided opportunities for students to develop decision-making skills in a manner that may be typical of the workplace.

Instrumentation

An attitude scale which asked participants to rate themselves on a number of positive and negative attitudes toward the relevance and practicality of using electronic communication and a real-world type problem was used to collect data for the study. The survey instrument consisted of two sections from which the measurement of variables was obtained. The independent variables chosen for the study were: (a) attitudes toward electronic communication technology and (b) demographic characteristics such as age, gender, student classification, and college major. The dependent variables, self-efficacies with electronic communication, were categorized according to essential function of use.

Attitudes Toward Electronic Communication Technology Scale

Kinzie and Delcourt (1991) developed a scale to measure individual attitudes toward computer technologies (ACT) which synthesizes and augments the research that has been done in this area over the last 15 years (Kinzie, Delcourt, & Powers, 1994). Author permission was secured to use the scale and to make appropriate revisions. The general phrase *attitude toward computer technology* was changed to attitude toward electronic communication technology and minor changes in wording were made to a number of items to make the questions more appropriate for this particular student group. A final statement regarding electronic communication technology as an overrated tool for productivity was added. The original instrument contained 19 items, 11 items measuring **Usefulness** (for example, *Communicating with others over a computer network has made me be more effective in my work*) and eight items measuring **Comfort/Anxiety** (*I feel comfortable about my ability to work with electronic communication technology*). The phrasing of the statements was balanced equally between positively and negatively phrased statements, as recommended by Likert (1932).

After administration to 328 university students, the developers of the instrument used a principal component analysis to the 19-item ACT instrument to identify three empirical factors which explained 52.3% of the variance among ACT items. Factor I contained eight items which loaded significantly. These items reflected *Comfort/Anxiety* in relation to computer technologies. The 11 items representing *Usefulness* loaded on Factor II and Factor III. These two factors were combined into one construct for two reasons. Factor II and Factor III correlated moderately positively (r = .45). Also, Factor II items are positively phrased and Factor III items are all negatively phrased. These results provided evidence for retaining the two factor instrument (*Comfort/Anxiety* and *Usefulness*). Alpha reliability for the ACT instrument was high (r = .89), as were the values obtained for reliability of the two individual conceptual factors (*Comfort/Anxiety*, r = .90; *Usefulness*, r = .83). As a result of these analyses, the authors imply that construct validity is assured and the scale may be used without much reluctance. The authors sate that although the instruments were designed for administration to secondary teachers and teacher education students, the instrument can easily be adapted for use with other specialized population groups, such as those from business education or science education.

Self-Efficacy with Electronic Communication Scale

As with the use of any technology, a person's perception of competence with computer technology reflects on the ability to perform the behavior to produce specific outcomes. Kinzie and Delcourt (1991) have developed a scale to measure individuals' perceived self-efficacy for computer technologies (SCT). The scale is designed to assess teacher education students' and practicing teachers' self-efficacy for word processing, electronic communications, and CD-ROM data bases. Author permission had previously been obtained, and the section of the instrument pertaining to electronic communication technology as the core items in an augmented scale was used for this study. The electronic communications section of Kinzie and Delcourt's self-efficacy scale contained nine items that addressed basic functions of electronic communications. Respondents were provided the stimulus phrase, *I feel confident . . .*, followed by statements such as *Logging on to electronic communications*, and *Sending the same message to more than one person*. The items that were added to the scale to reflect more advanced functions such as uploading and downloading files from the electronic communications environment.

Using only one section of a three-section scale that included word processing, electronic communications, and CD-ROM data base was deemed appropriate since self-efficacy is considered to be task specific (Schunk, 1985). The measure of self-efficacy with regard to specific performances are more important than an attempt to measure a global construct. In fact, during the development of the SCT, Kinzie and Delcourt (1991) noted significant factor loadings generated by Varimax and oblique rotations. Also, using Kaiser's criterion, a principal Component Analysis revealed a three-factor solution accounting for 84.4% of the variance in the total set of 25 items for 313 respondents. Further, interrelations between Factor I (word processing) and Factor II (electronic communication) of r = .42 and Factor II (electronic communication) and Factor III (CD-ROM data base) of r = .41 indicate low to moderate relationships between the factors. Since, by definition, measures of self-efficacy are task specific, keeping these factors separate is conceptually preferable. The internal consistency reliability was .98 (alpha estimate) for the electronic communications factor of the original self-efficacy scale.

Electronic Communication Instruction

The instructor devoted approximately 35 minutes (70%) of one class period to provide electronic communication instruction through lecture supplemented by demonstration. While lecturing, the instructor used a portable teaching unit with Internet access capability to demonstrate appropriate electronic communication use. Topics addressed included logging on to the Internet, using the address book, adding and deleting electronic messages, composing electronic messages, using the spell-check features, sending electronic messages to one receiver, sending electronic messages to multiple receivers, sending a copy of electronic messages, forwarding electronic messages, printing hardcopies of electronic messages, uploading/downloading files, and using electronic communication ethically. After the classroom instruction, students were then directed to practice using electronic communication by corresponding with the instructor and with each other a minimum of two times daily for one week. After the practice session, East Carolina University (ECU) Science Education students began corresponding with ECU Business Education students.

Methodology

To prepare tomorrow's workforce today, students in selected Business Education (BE) and Science Education (SE) courses at ECU participated in a semester-long project designed to apply knowledge, skills, and abilities as they would be used in the workplace. Students in the BE and SE courses worked together as a team to solve a problem which had implications for both business and science. Thus, the BE students were the business and economic experts, and the SE students were the science/ecology experts.

Specifically, participants were undergraduate and graduate students who were either BE teacher education majors or SE teacher education majors at ECU. BE students were enrolled in a teacher education methods' course, and the SE students were enrolled in a middle grades science education methods course. Instructors of the BE and SE course cooperatively designed a relevant to the eastern North Carolina economy concerning business and ecological issues. For the purpose of this study, three issues extremely important to the economy of eastern North Carolina were used—(1) hog farming and the possible impact on water safety, (2) construction at beach resort property and the possible harmful effects of weather, and (3) microorganisms affecting river water safety. The instructors directed students to select one of the topics; and based on the students' choices, the students were grouped into one of the three areas. Thus, each class—BE and SE—had one group which corresponded to each of the three areas. Students enrolled in the BE course were the "business" consultants and the students enrolled in the SE course were the "science" consultants.

At this point, both the BE and SE instructors distributed a fact sheet for each potential problem. From the fact sheet, BE and SE students learned that they had been hired as consultants to recommend to the company's management whether or not the proposed business opportunity should be implemented. Students were to correspond via electronic communication to cooperatively research the problem. BE students corresponded with SE students regarding ecological issues, and the SE students corresponded with the BE students concerning business and economic issues. Both the BE and SE instructors provided suggested questions for the participants to consider while solving the problem. At the end of the semester, both the BE and SE students jointly presented to the BE and SE instructors a multimedia presentation describing their research, their recommendation, and their rational for the recommendation. In addition, the BE and SE instructors provided class time for groups to meet periodically during the semester to prepare a joint presentation for the Board of Directors. The final examination for both the BE and SE course was the formal multimedia presentation.

Data Collection

An attitude scale which asked participants to rate themselves on a number of positive and negative attitudes toward the relevance and practicality of using electronic communication and a real-world problem was used to collect data for this study. Kinzie and Delcourt's scale (1991), designed to measure individual attitudes toward computer technologies (ACT) which synthesizes and augments the research that has been done in this area over the last 15 years (Kinzie, Delcourt, & Powers, 1993; Steinfield, 1983), was refined for this study. Participants completed the attitude scale as a pre-test prior to completing the electronic communications project and as a post-test following the completion of the electronic communications project at the end of the semester. Appropriate approvals were obtained from human subject committees prior to the execution of the study.

Analysis of Data

In addition to descriptive statistics, the two primary statistical tools used to analyze the data were factor analysis and multiple regression. The findings from these two analyses allowed the researchers to describe the relationships existing among the variables and to use the known correlations to predict from one variable to another. Factor analysis was performed upon the attitude items for two purposes: (a) to determine if the factors would load similarly to the factor loadings on the instruments (Kinzie & Delcourt, 1991) from which the scales were adapted and (b) to identify a smaller number of factors to facilitate multiple regression procedures. To analyze the intercorrelations among the large set of measures in the attitudes, and the self-efficacy part of the survey instrument, factor analysis was performed to identify a smaller number of common factors. Identifying the pattern of relationships that exist among the variables, multiple regression analyses were used to predict the effect of attitude and demographic characteristics on self-efficacy of electronic communication.

The results of a principal component analysis of the 14 attitude items are presented in Table 1. The scores for all negatively phrased questions were recoded to match the range of scores in the positively phrased questions (4 = 1, 3 = 2, 2 = 3, and 1 = 4). Factor I, which reflected *Usefulness* of electronic communication technology, contained nine/eight items which loaded convincingly, .695 to .951, after the factors were rotated. The correlation for Item 12, Communicate with more people, was somewhat lower than for the other items, .433. Students were, apparently not, as yet, using electronic communication for purposes other than this project. Factor II, which reflected *Comfort/Anxiety* with electronic communication technology, contained six five items that loaded convincingly after the factors were rotated, .656 to .896.

Table 1
Principal Component Analysis: Varimax Rotation for Attitudes Toward Electronic Communication[a]

Item	Stem	Factor I	Factor II
	Factor I: Usefulness		
1	I don't have use for electronic communication on a day-today basis.	.688	.057
2	Using electronic communication in my class has only meant more work.	.559[b]	.180
3	I don't think electronic communication is useful in my profession.	.579[b]	.197
5	With electronic communication, I can enhance my communication.	.653	.122
6	If I use electronic communication, I will be more productive	.743	.012
7	Anything that electronic communication can be used for, I can do just as well in some other way.	.551[b]	.154
10	I can use electronic communication to access many types of information for my work.	.640	.341
12	I communicate more often and/or with more people since using electronic communication.	.433	.423
14	Electronic communication is an overrated tool for productivity.	.681[b]	.046
	Factor II: Comfort/Anxiety		
4	I feel at ease using electronic communication.	.241	.616
8	The thought of using electronic communication makes me anxious.	.153	.687[b]
9	Electronic communication technology is confusing to me.	.087	.703[b]
11	I am anxious about electronic communication because I don't know what to do if something goes wrong.	.144	.055[b]
13	I feel comfortable about my ability to work with electronic communication	.144	.732

[a] n = 25

[b] Scores for negatively phrased stems were recoded before factor analysis was performed. These two factors accounted for 57.8% of the variance for the 14 items in this scale.

Information presented in Table 2 shows the means and standard deviations of students' attitudes toward electronic communication technology. The mean of the response range would be 2.5 since 1 – agree and 4 = disagree. As with the factor analysis, negatively phrased items were recoded to match the range of scores in the positively phrased items (4 = 1, 3 = 2, 2 = 3, and 1 = 4). Therefore, means lower than 2.5 indicate that students have a positive perception of the concept of electronic communication as it relates to the item topic. For instance, students really believe electronic communication will not enhance communication (mean = 2.55). Further, students do perceive electronic communication as a highly professional tool (mean = 2.76) which has potential to enhance productivity (mean = 2.25) without creating more work for them (mean = 2.32). Student responses to the item, *Electronic communication does not make me anxious*, indicate that, in general use, electronic communication does not create a level of anxiety (mean = 2.38) worthy of concern. However, if students encounter some difficulty during the process of using electronic communication, students' levels of anxiety tend to rise slightly (mean = 2.45). On the other hand, students participating in this study perceived that practice time available for using electronic communication (mean = 1.96) or in accessing information via electronic communication (mean = 1.04) is not needed as currently provided by both the Business Education and Science Education participants.

Information presented in Table 3 displays the means and standard deviations of students' perceived level of comfort with electronic communications. Business and Science education students in this study were comfortable with reading electronic communications (mean = 1.42). Interestingly, students were more comfortable with sending electronic messages (mean = 1.06) than responding to electronic messages (mean = 1.98).

Discussion

Today's students have been labeled the **Multimedia Generation** as they have been exposed to computer technology throughout their lives. Therefore, traditional instructional strategies and methodologies which do not involve electronic information technology are not relevant and appropriate for training the 21st century workforce. Further, today's Multimedia Generation expects the instructional process to include all types of technology to prepare these students for their future. Yet, educators—both business education and science education—face a dilemma. Business and science educators have not been and are not able to keep pace with rapidly advancing electronic information technology. With the mandate for all classrooms to be Internet accessible, educators can take advantage of new electronic information technology. Thus, educators can now provide relevant and practical instruction by using this electronic technology.

The ECU Business-Science connection used electronic communication technology and a decision-making activity to link the real world, the local environment, and the educational process. Participants in this activity were required to use knowledge gained from previous coursework, as well as current coursework, to

Table 2
***Means and Standard Deviations of Attitudes Toward Electronic Communication*[a]**

Variable	Mean[b]	SD
Electronic Communication is useful on a daily basis	1.48	.08
Electronic Communication does not mean more work	1.32	.96
Electronic Communication is not useful in my profession	2.76	1.11
Feel at ease using electronic communication	1.96	.78
Enhance my communication	2.55	.98
More productive using electronic communication	2.25	.74
Cannot do another way than with electronic communication	1.92	1.07
Electronic communication does not make me anxious	2.38	1.09
Electronic communication technology is not confusing	1.44	.12
Access information using electronic communication	1.04	.99
Not anxious if something goes wrong	1.92	1.18
Communicate more often	3.78	1.52
I feel comfortable with electronic communication	2.32	.94
Electronic communication is not an overrated tool	1.94	1.58

[a] n=25
[b] Respondents were asked to agree or disagree with statements about electronic communication. The following scale was used: 1 = Agree, 2 = Slightly Agree, 3 = Slightly Disagree, and 4 = Disagree.

Table 3
***Means and Standard Deviations of Self-efficacy with Electronic Communication*[a]**

Variable	Mean	SD
Reading electronic communication	1.42	0.45
Responding to electronic communication	3.75	0.56
Sending electronic communication	1.06	0.74
Forwarding electronic communication	1.98	1.25
Downloading electronic communication	2.49	0.86
Uploading electronic communication	2.47	0.79
Printing electronic communication	1.98	0.99
Deciding which to discard	1.85	0.45

[a] n=25
[b] Respondents were asked to agree or disagree with statements about electronic communication. The following scale was used: 1 = Agree, 2 = Slightly Agree, 3 = Slightly Disagree, and 4 = Disagree.

handle a business problem. When examining the collected data, conflicting information may appear upon initial review. However, after reviewing the information thoroughly, students' perceptions regarding the use of electronic communication technology to solve a problem becomes much clearer. Students indicated that the use of electronic communication technology added a favorable dimension to the learning process—students like the use of the technology to solve a "real world" problem. Both business education students and the science education students reported increased awareness of the need for accurate, timely, and useful information in the decision-making process as well as a better understanding of the need to work together to reach a mutually agreeable decision. Moreover, many students indicated that the business education-science education connection was a good experience—the activity provided additional electronic communication skills and decision making skills. Yet, and most important, students—both business and science—felt the activity was pertinent and relevant to preparing both business and science students for the 21st century.

Conclusion

Both the ECU business education and science education students liked the use of electronic communication to solve a business problem and work cooperatively to reach a mutually satisfying decision. Thus, both business and science education students felt that this activity was relevant and practical as it prepared them for the world of work. Therefore, the inclusion of activities involving electronic communications is a viable approach to provide practical, pertinent, and relevant learning situations that students want in their preparation for the future.

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International Business Education—What Should be Taught and by Whom?

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Abstract

An updated report of the national DPE research project on the teching of international business competencies will be presented by the researchers. The project will be discussed and DPE chapters are invited to be participants in the research. The intent of the study is to identify which competencies business educators feel responsible for teaching, which competencies social studies educators feel responsible for teaching, and what competencies are neglected between the two groups.

Business educators have three basic areas of instruction in their classroomsCfor business, about business, and leadership development. An underlying goal for all business education programs is preparing students to Ahandle their own business affairs and to function intelligently in a business economy@ (Blockhus, 1990, p. 106). One of the more significant changes in the instructional areas is an adaption to an interdependent world economy (Redmann and Davis, 1993). In *America 2000*, six long-range goals are addressed, including the need for individuals to be literate, knowledgeable, and competent Ato compete in a global economy as an informed citizen (America 2000, 1991, p. 64). Zeliff stated that Ait is important for a nation=s people to be sensitive to the cultures and customs of other nations and at the same time be informed of governmental laws and action@ to participate in a global economy as an informed citizen (1993, p. 20). Scott (1990) suggested that U.S. secondary schools are lagging behind the educational standards of other nations with the absence of international business instruction.

International literacy may be integrated into the current curriculum or taught in a separate course. In a recent survey of educational professionals, ten percent anticipated adding a course in international business within the next two or three years. An additional 70 percent of those who do not currently teach international business recommended the addition of such a course or unit of study in the near future (Beistle, 1991). Redmann and Davis (1989) completed a literature search and found a limited number of relevant materials which focused on intercultural education topics.

Objective and Need for the Project

Some international business curriculum materials can be purchased and used in the business classroom. Texts and supplemental materials have been published. One of the objectives of this proposed research includes the identification of international business competencies which both business and social studies educators consider to be important and which of these objectives are part of their own teaching domain. In addition, any areas of overlap and neglect would be identified, with the neglected areas representing a potential teaching area for business educators. Additionally, publications benefitting the profession of business education could result from this research—service bulletins on the international business curriculum and the identification of a body of knowledge to be used for in-service workshops on international business

Type of Research

A descriptive study will be undertaken and will be self-reported survey research. Surveys will be collected from participants in order to determine the current international business practices in business education and social studies.

Methodology

The population for the study will consist of all Delta Pi Epsilon members and their social studies peers within the same educational institution. The sample drawn from this group will be selected utilizing a nonprobability sample technique.

The data collected from the respondents will come from an instrument that was developed by the researchers in conjunction with the national DPE Research Projects Committee. Thirteen demographic questions are asked of each participant. The pilot instrument lists 82 international business competencies, drawn from six state curriculum guides and the National Business Education Association (NBEA) *National Standards for Business Education*. The pilot instrument is under review by five secondary and five post-second/collegiate business educators, one from each of the five NBEA regions. In turn, each of the ten business educators will request that a social studies peer within their organization complete the same instrument from a social studies perspective. Comments regarding the listed competencies and the construction of the instrument are also sought from the twenty pilot individuals.

Based upon the results of this pilot, a final survey will be developed for use in the study. This survey will identify which competencies business educators feel responsible for teaching, what competencies social studies educators feel responsibility for teaching, what competency areas overlap, and what competencies may be neglected between the two groups. Demographic items will remain a part of the instrument.

A random sample of DPE members in each region will be selected for participation in the study. The selected DPE members will complete the final instrument from the business education perspective and ask a social studies educator within the institution to complete the instrument from a social studies perspective.

The researchers anticipate analyzing the collected data in several ways. Descriptive statistics will be derived from the demographics section and others of the instrument. Frequencies will be generated to illustrate which competencies each classification of educator feels belongs in the business or social studies curriculum, along with identifying any potential overlap or area of neglect. Other tests of significance will be run to potentially identify any differences which may exist on a regional basis. Other statistical tests which seem appropriate will be completed during the data analysis phase of the study.

Potential Contribution to the Field

The results of this research will contribute to the field of business education through the identification of international business competencies taught by the respective disciplines of business education and social studies. Identified competencies and topics that overlap between disciplines and those that are neglected can be evaluated as to their presence in the curriculum of business education and social studies.

Description of Human Subjects Involved

The human subjects involved in this project are Delta Pi Epsilon members selected randomly and their chosen social studies peers from the same institution. The Delta Pi Epsilon members would volunteer their time and knowledge to complete the instrument(s), as well as guarantee the participation of their colleagues. Both sets of instrumentation would then be returned by the DPE member to the primary researchers for interpretation and dissemination of the results of the study.

International Business Education--What Should be Taught and by Whom?

National Research Project - Delta Pi Epsilon

Funded by the Delta Pi Epsilon Research Foundation, Inc

Survey for Business Educators

You will use #1-#82 of the scannable answer card for the following questions. Mark Aa≅ on the answer card if you believe the competency should be taught in a business course. Mark Ab≅ if you have taught the competency by integrating it in a business course or in a stand alone international business course. Mark Ac≅ if you would respond yes to both Aa≅ and Ab.≅ Mark Ad≅ if none apply.

International Business Competency	Business Competency	Have Taught	Both a and b	Neither a, b, nor c
	Mark Aa≅	Mark Ab≅	Mark Ac≅	Mark Ad≅

1 Discuss the relationship between international events and the daily conduct of business.
2 Interpret the impact of emerging economic and political changes in international operations.
3 Identify international trade partners, explain their role, and point out the trading patterns of companies based on region, state, and country.
4 Describe the impact of international business activities on the local, regional, national, and international economies.
5 Analyze the potential impact (on a community, region, state, and country in which it is located) of a domestic company involving itself in international trade opportunities.
6 Locate the major trade regions of the world.
7 Explain the relationships of the major trade alliances with each other.
8 Determine the impact of geography on international business, to include areas such as climate, time zones, distance, topography, and social, economic, and natural resources.
9 Identify the individual and collective roles in international business of countries referred to as industrialized, developing, and less developed.
10 Identify careers that are influenced by international business.
11 List the skill requirements/qualifications needed to enter a selected international business career path.
12 Identify and locate major US representational offices and sources of assistance located abroad.
13 Explain the role of US Customs and the customs agencies of other countries.
14 Prepare international trade documentation.
15 Discuss complications involved when speaking or interpreting a language incorrectly abroad.

	International Business Competency	Business Competency	Have Taught	Both a and b	Neither a, b, nor c
16	Compose effective business communication based on understanding of the relevant environments and differences in tone, style, and format	**Mark Aa≅**	**Mark Ab≅**	**Mark Ac≅**	**Mark Ad≅**
17	Analyze the effectiveness of individuals communicating in an international environment given a specific situation				
18	Identify international cultural differences in food, dress, gift giving, business entertainment, and other social behaviors				
19	State examples of nonverbal communication (time, silence, space, body/eye contact) affecting international business relationships and negotiations				
20	Communicate with international organizations or individuals electronically using telephone, fax, telex, electronic mail, and/or the Internet				
21	Evaluate which telecommunication methods are most appropriate for given international business situations				
22	Compare the social roles of various subpopulations (women and minorities) in different countries				
23	Identify distinctive social, weather, and cultural factors affecting business activities (time, workday, workweek, schedules, and holidays)				
24	Predict how the social, cultural, and religious environment of a given country might impact a company beginning to do business in that country				
25	Identify various types of governments, political systems, and functions of government in other countries				
26	Define trade barriers, tariffs, and quotas				
27	Describe how trade barriers, tariffs, quotas, and taxation policies affect choice of location for companies operating internationally				
28	Predict how the political and geographical environment of a given country will impact international business				
29	Describe the differences among various legal systems such as code, statutory, and common law				
30	Describe US licensing requirements for the export of products and services and foreign market entry requirements				
31	Recognize legal differences that exist between and among countries in areas such as consumer protection, product guidelines, labor laws, contract formulation, liability, and taxation				
32	Define methods for resolving legal differences such as mediation, arbitrage, and litigation in different cultures				
33	Identify the levels of regulation applied to intellectual properties (copyrights, trademarks, and patents) in different countries				

	International Business Competency	Business Competency	Have Taught	Both a and b	Neither a, b, nor c
34	Analyze the major legal aspects and ramifications of international relations with special emphasis on topics such as financial systems and reporting, licensing, and judicial systems.	**Mark Aa≅**	**Mark Ab≅**	**Mark Ac≅**	**Mark Ad≅**
35	Identify and compare domestic and global generally accepted accounting practices (GAAP).				
36	Discuss legal implications on the ethical conduct of business across national boundaries.				
37	Identify the natural, human, and capital resources used to produce goods and services exported to other countries.				
38	List factors that distinguish economic development among countries.				
39	Define terms such as GDP (GNP), balance of trade, foreign debt, and cost of living.				
40	Analyze the availability of resources in a country and the economic potential of the country to improve its quality of life by engaging in international trade.				
41	Explain how decision making and opportunity costs are used to allocate the scarce resources of companies and countries.				
42	Describe situations in which comparative and absolute advantages occur.				
43	Identify the economic systems used to decide what to produce, how it is produced, and for whom it is produced in a country.				
44	Discuss the effect of literacy level, technology, natural resource availability, and infrastructure on the level of a company=s economic development.				
45	Interpret current economic statistics for different countries.				
46	Determine appropriate business strategies for a foreign market in situations such as pure competition, monopolistic competition, and oligopoly.				
47	Discuss the effects of ethics, social responsibility, and bribes on business abroad.				
48	Explain how currency exchange rates affect companies.				
49	Describe how economic conditions, balance of payment situations, and political issues affect currency values.				
50	Calculate currency exchange transactions.				
51	Distinguish between hard and soft currencies and convertible and non-convertible currencies.				
52	List sources of capital for international, transnational, multinational, and global companies.				
53	Describe the international monetary system, including the International Monetary Fund, World Bank, Eurocurrencies, and other international banking organizations.				

	International Business Competency	Business Competency	Have Taught	Both a and b	Neither a, b, nor c
54	Describe the mechanics, terminology, conditions, and terms of letters of credit and other documents.	Mark Aa≅	Mark Ab≅	Mark Ac≅	Mark Ad≅
55.	Identify major country, foreign exchange, and commercial risks associated with international business.				
56	Describe the production processes used to create goods and services in different countries. international business activities.				
57	Describe available insurance options to protect against trade risks.				
58	Describe the production processes used to create goods and services in different countries.				
59	Describe the different living and working conditions found in foreign countries.				
60	Identify the factors that influence the application of managerial styles in different countries.				
61	Define such terms as host country, home country, expatriate, host country national, third country national, and labor organizations.				
62	Describe how a company markets a product/service in other countries.				
63	Illustrate how social, cultural, technological, and geographical factors influence consumer buying and behavior in different cultures.				
64	Describe how marketing mix elements need to be adapted for international marketing efforts.				
65	Develop an international marketing plan for a company entering a foreign market.				
66	Explain how brands and packages are affected by culture and how they may need to be altered before marketing in a new environment.				
67	Explain how social, cultural, and political factors affect the new product development process.				
68	Convert weights and measures from English to the metric system.				
69	Explain how foreign exchange, economic conditions, and the international business environment affect prices charged in foreign markets.				
70	Design a pricing strategy for a product sold in an international market.				
71	Contrast direct and indirect distribution channels and their costs for international marketing.				
72	Identify the differences in roles of agents, wholesalers, retailers, freight forwarders, export companies, trading companies, and customs brokers.				
73	Describe situations in which each transportation method would be most appropriate.				
74	Discuss media used in different foreign markets.				

International Business Competency	Business Competency	Have Taught	Both a and b	Neither a, b, nor c
75 Analyze the influence of social and cultural factors affecting promotions used in foreign markets.	**Mark Aa≅**	**Mark Ab≅**	**Mark Ac≅**	**Mark Ad≅**
76 Evaluate the effectiveness of a promotional mix campaign used by a company in a foreign market.				
77 Identify goods and services imported to or exported from a state, region, or country.				
78 Identify circumstances under which countries would trade with each other.				
79 Identify documents commonly used in the importing and exporting process.				
80 Explain how historical events have contributed to the formation of strategic trade alliances.				
81 Identify organizations, government agencies, and other resources that a small and/or medium size business might use to investigate international trade opportunities.				
82 Compare the business plans of a domestic company and of a company involved in international business activities.				

Demographic Information

Please complete this demographic portion of the survey on the scannable answer card using a No. 2 pencil.
You will use #83-#95 on the answer card

83	**Gender**	A) Female	B) Male			
84	**Ethnic group**	A) American Indian/Alaskan Native	B) Asian or Pacific Islander	C) Black/African American	D) Hispanic	E) White
85	**Age in years**	A) 20-30	B) 31-40	C) 41-50	D) 51-60	E) over 60
86	**Region**	A) Western	B) Mountain-Plains	C) North-Central	D) Eastern	E) Southern
87	**Teaching level**	A) Middle School (5-8) D) College/University (4 years)	B) High School (9-12) E) Other ____________________	C) Post-Secondary (2 years) (identify)		
88	**Current educational/institutional community**		A) Rural	B) Suburban	C) Metropolitan	
89	**Current educational institution city size**		A) less than 25,000 D) 75,001-100,000	B) 25,001-50,000 E) over 100,000	C) 50,001-75,000	
90	**Taught international business stand-alone course**		A) Yes	B) No		
91	**Integrated international business topics in other courses**		A) Yes	B) No		
92	**Intercultural experience - Tourist**		A) less than 2 years D) over 10 years	B) 2-5 years D) none	C) 6-10 years	
93	**Intercultural experience - Business travel**		A) less than 2 years D) over 10 years	B) 2-5 years D) none	C) 6-10 years	
94	**Intercultural experience - Employment**		A) less than 2 years D) over 10 years	B) 2-5 years D) none	C) 6-10 years	
95	**Intercultural experience while in US--social and/or business interactions with international individuals**				A) Yes	B) No

International Business Survey

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Abstract

In 1996, 659 businesses of various sizes in Western Kentucky, Western Tennessee, Southern Illinois, and Southeastern Missouri were contacted. Twenty-six percent indicated that they were involved in international business. A majority of these businesses are involved in manufacturing or wholesale/distribution and are small businesses with 100 or fewer employees. The percentage of employees involved with international business within this region is expected to either remain the same or increase over the next ten years. Most of these businesses do not use languages other than English while conducting business and many companies experience communication problems when dealing with persons from other countries.

Purpose

"Nowhere is the trend toward globalization more apparent than in the U.S. (Clark, 1996, 102)." International business is increasing throughout the United States, even in rural regions in the center of the country. In 1990, export sales rose substantially in three such states: Kentucky by 28 percent, Missouri by 33 percent (Ellsworth, 1992, 19-20), and Tennessee by 26 percent (Ellsworth, 1992, 18). In fact, "about one of every nine manufacturing jobs in Kentucky were traceable to exports of manufactured products" in 1985 (Ellsworth, 28). "There are over 600 Japanese companies in the state of Tennessee alone (Mendenhall, 1997)."

Murray State University, a state university of approximately 8,500 students, is located in a predominately rural area of Western Kentucky and services students from Western Kentucky, Western Tennessee, Southern Illinois, and Southeastern Missouri. Accredited by the Association of American Colleges and Schools of Business (AACSB), the College of Business and Public Affairs has begun placing increasing emphasis on international business in its programs. In addition, a new program in International Business has been developed. Because of these events and the increasing emphasis on international business in business programs throughout the United States, the need to determine the amount and type of international business activity within the university's immediate region developed.

The following questions were intended to be answered by this study:

1. What percentage of employees are involved in international business and what factors are important in hiring employees who will be involved in international business?
2. What percentage of the companies' total business is done internationally and will that percentage increase?
3. With what countries are these companies doing business?
4. Are expatriate employees working in these companies? In which countries are these people working or where are they from?
5. What languages other than English are being used while conducting business? What are those languages?
6. Are there problems when communicating with persons from other countries?
7. What types of communication are being used by employees when communicating with persons from other countries?

Procedures and Design

Using Chamber of Commerce membership rosters and telephone directories, a database of 1,458 entries was generated of businesses of all sizes within a 90-mile radius of Murray, Kentucky, in the United States. This geographic region included Western Kentucky, Western Tennessee, Southern Illinois, and Southeastern Missouri. Certain types of businesses, such as service stations and beauty salons, were eliminated as being unlikely to be involved in international business.

These businesses were contacted randomly by telephone and asked if they were involved in international business. If the response was positive, the respondent was asked if he/she would be willing to complete a survey. If the respondent agreed, a two-sided single sheet survey form and a business reply envelope were mailed. Follow-up telephone calls were made if the completed survey was not returned with a two-week period. This process was continued until at least 100 completed surveys were received.

During 1996, 659 businesses were contacted by telephone. Of these, 172 (26 percent) indicated that they were involved in international business. Although only four companies indicated that were not willing to complete the survey, 102 (61 percent) surveys were completed by the end of 1996.

Findings

Of the 102 respondents, 66 (64.7 percent) indicated that the majority of their business was involved in manufacturing, 20 (19.6 percent) indicated that the majority of their business was either wholesale or distribution. Over half (57 respondents or

55.9 percent) indicated that 100 or fewer employees were employed in their Western Kentucky, Western Tennessee, Southern Illinois, or Southeastern Missouri locations.

Employees

Respondents were asked to estimate the percentage of their employees who were involved with international business. Of 102 respondents, 61 (60 percent) indicated that 25 percent or less of their employees were involved with international business. However, when asked how they anticipated the percentage of employees who were involved with international business would change over the next ten years, 43 percent of the respondents indicated that they expected that percentage to increase and 53 percent expected the percentage to remain the same. None of the respondents indicated that they expected the percentage of their employees involved with international business to decrease over the next ten years.

Factors Used in Hiring

The respondents were given a list of factors and asked to evaluate the importance of each of those factors when hiring employees who would be involved in international business. They were asked to differentiate between those employees who would be located in the United States and those who would be sent overseas. The responses are shown in Table 1 below. Factors which were ranked as most important are indicated by the number 1, second most important as 2, etc., for each category.

Table 1
Factors Used When Hiring International Business Employees

Attributes of Employees	Rank for Assignment in U.S.	Rank for Overseas Assignment
College degree	3	2
Coursework in international business	5	4
Work experience with international business in the U.S.	2	3
Ability to speak a foreign language	4	1
Work experience in another country	6	5
Study in another country	8	7
Good English communication skills	1	6
International travel	7	8
Other	9	9

Other factors listed by respondents included cultural skills, mechanical skills, willingness to work and learn, personality, and flexibility.

Percentage of Business

Respondents were asked to estimate the percentage of their total business that was done internationally. Of the 102 respondents, 71 (69 percent) indicated that 25 percent or less of their business was done internationally. When asked how they anticipated that that percentage would change over the next ten years, 66 percent of the respondents indicated that they expected the percentage of international business done in their organizations to increase; 26 percent expected that percentage to remain the same; and 5 percent expected that percentage to decrease.

Countries

Respondents were asked to list the countries (outside of the United States) with which their organizations currently were doing business. Table 2 shows the countries/regions listed by these respondents. Most indicated more than one country. In all tables countries with at least nine responses are listed separate from their regional classification.

Table 2
Countries/Regions Where Business Is Conducted

Country/Region	Number of Companies
Canada	37
Europe	35
Mexico	34
Japan	32
Asia	25
England	23
Germany	21
Central America	15
Australia	15
Middle East	14
Africa	11
China	10
Brazil	9
Caribbean	9
Taiwan	9
All Countries	7
Eastern Europe and Russia	5

When asked if they anticipated doing business with any additional countries (outside of the United States) in the future, 56 (55 percent) of the respondents indicated that did expect to do business with more countries and 29 (28 percent) indicated that they did not. Table 3 indicates those countries with which the 57 respondents expected to do business with in the future.

Expatriate Employees

An expatriate employee was defined in the survey instrument as "a person working and/or living outside of his/her own country." Respondents were asked if their organization had U.S. employees working in other countries. Of the 102 respondents, 20 (20 percent) indicated that they did have U.S. employees working outside of the United States and 77 (77 percent) indicated that they did not. Table 4 shows the countries in which respondents indicated that these employees are currently working. Several respondents listed more than one country or region.

Table 3
Countries/Regions Expected to be Included in the Future

Additional Countries/Regions	Number of Companies
Asia	17
Europe	9
South America	9
Mexico	6
China	5
Eastern Europe and Russia	4
Australia and New Zealand	3
Central America	3
Germany	3
Brazil	2
Japan	2
Caribbean	1
Middle East	1

Table 4
Countries/Regions Where U.S. Expatriates Are Working

Countries Where Employees Are Working	Number of Companies
Europe	7
Canada	6
Australia and New Zealand	5
Germany	5
Mexico	5
Asia	4
Caribbean	4
England	3
Japan	3
Taiwan	3
Central America	2
Africa	1
China	1
South America	1

When asked if their organization had expatriate employees from other countries working in U.S. locations, 23 (23 percent) of the respondents indicated that they did and 72 (71 percent) of the respondents indicated that they did not have expatriate employees from other countries working in their U.S. locations. Table 5 shows the home countries of these employees. Many respondents indicated more than one country or region.

Languages

Respondents were asked if languages other than English were currently being used while conducting international business in their organizations. Of the 102 respondents, 36 (35 percent) indicated that languages other English were being used and 61 (60 percent) indicated that they were not being used. Of the 36 who indicated that languages other than English were being used, 30 (83 percent) indicated that 25 percent or less and 16 (44 percent) indicated that less than 10 percent of their business was conducted in a language other than English. Table 6 shows the languages other than English which respondents indicated were currently being used in their organizations. Several respondents indicated that more than one language was being used.

Table 5
Home Countries/Regions of Expatriate Employees

Home Countries of Employees	Number of Companies
Germany	8
Japan	5
Canada	4
England	3
U.K.	3
China	2
Europe	2
India	2
Mexico	2
Dominican Republic	1
Guatemala	1
Taiwan	1

Table 6
Languages Being Used

Other Languages Being Used	Number of Companies
Spanish	25
French	9
German	8
Japanese	4
Chinese	2
Portuguese	2
All Languages	1
India	1
Korean	1
Mandarin	1
Russian	1
Taiwanese	1

Communications Problems

Respondents were asked if their organization experienced communication problems when dealing with persons from other countries. Of the 102 respondents, 50 (49 percent) indicated that they experienced communication problems and 42 (41 percent) indicated that they did not. Those respondents who indicated that they did experience communication problems were asked to indicate the types of communication problems which were experienced in their organizations. Respondents were asked to indicate all problems that applied. Table 7 shows the communication problems listed and the number of respondents who indicated experiencing each problem.

Table 7
Communication Problems Experienced

Communication Problems	Number of Companies
Language difficulty	52
Cultural differences	24
Problems with telephone lines	19
Inadequate unreliable equipment	7
Other	5

Other communication problems listed included currency exchange, blueprints and other printed material, incomplete and illegible faxes, switching to different languages throughout conversations, time zone differences, and translation difficulty.

Using Chi Square statistics, a comparison was made of the responses indicating whether or not languages other than English were currently being used while conducting business and whether or not respondents experienced communication problems when dealing with persons from other countries. As indicated in Table 8 below, there is a correlation between these two variables. Respondents who did not answer either question have been eliminated from this table.

Table 8
Languages Used and Communication Problems Experienced

	Languages Used Other Than English		
Communication Problems Experienced	Yes	No	
Yes	27 (20.5)	28 (34.5)	55
No	8 (14.5)	31 (24.5)	39
	35	59	94

Expected cell frequencies are shown in parentheses.
The obtained chi-square is 7.92, 1 degree of freedom, 99% confidence level.
The critical value of chi-square for 1 df is 6.63 at 99% confidence level.

As shown in Table 8, there is a surprising relationship between the number of companies that use languages other than English while conducting business and the number of companies that experienced communication problems when dealing with persons from other countries.

Types of Communication

Respondents were asked to indicate each type of communication that was used by employees in their organization when communicating with persons from another country. Table 9 shows the types of communication listed and the number of respondents who indicated that they used each type of communication.

Table 9
Type of Communication Used

Type of Communication	Number of Companies
Facsimile	85
Telephone	84
Letters	59
Reports	25
Electronic Mail	20
Telex	4
Other	4

Other types of communication indicated were blueprint drawings, graphics, visits, and air couriers.

Respondents were also asked to estimate the percentage of each type of communication used in their organizations when communicating with persons from another country. The two types of communication with the highest average percentage indicated were facsimile at 32.7 percent and telephone at 30.3 percent. Letters were listed at an average percentage of 14.8 percent.

Conclusions

The majority of the companies involved in international business in this region are involved in manufacturing or wholesale/distribution. The majority of the businesses involved in international business in this region are small with 100 or fewer employees. The percentage of employees involved with international business within this region is expected to either remain the same or increase over the next ten years.

The ability to speak a language other than English, although important when employees are located in the United States, is essential when employees are sent overseas. Additional skills important when hiring employees who will be involved in international business include a college degree and work experience in international business.

Although the percentage of total business done internationally in companies within this region is currently low in many companies, the amount of that business is expected to increase within the next ten years.

Companies within this region are doing business in a variety of countries and the number of countries is expected to increase in the future. A large number of companies in this region are not currently assigning employees to work as expatriates in a country other than their home country.

The majority of the companies doing international business in this region do not use languages other than English while conducting business. Of those that do, Spanish is the language most widely used. However, many companies experience communication problems when dealing with persons from other countries, and the most common type of problem experienced is language difficulty. Even though companies used languages other than English when communicating with persons from other countries, communication problems were experienced. Perhaps the small percentage of business done in languages other than English or the wide variety of countries with which these companies did business contributed to this finding.

Most of the companies in this region communicate by letter when communicating with persons from another country, although facsimile and telephone are used a higher percentage of the time.

Recommendations

Studies of this type not only provide useful information for schools and colleges of business within the region studied, but can be applied to many regions, especially within the United States. This study focuses on a predominately rural region with a large number of small businesses, a description which matches many areas in the country.

It is important to the business education professional to keep assessing the needs of employers who are involved with international business since the number of these employers is increasing. It is very likely that future graduates of business programs will be employed by a company which is involved with international business. Students who are interested in a career in international business should be encouraged to study a foreign language.

The teaching of business communication will become increasingly important. Despite the increasing availability and use of telecommunications technology such as facsimile and telephone, written correspondence skill is still important for business education graduates. In fact, new technology has placed an "ever greater emphasis on communications (Only Communicate, 1995, 519)."

One important challenge to the profession and the international community is the problem of communication when doing business with persons from other countries. It is necessary to dialog with business people in order to determine how the problem of language difficulty in international business communication can be addressed.

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Job Task-Analysis Approaches for Microcomputer Application Curriculum Development

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Abstract

This study ranks the software operations used by Twin Cities area computer users in major office software applications. Two curriculum uses are recommended: identification of the high priority software features to teach beginners; and identification of high priority features for employed computer users. Three job analysis approaches are described: a task-analytic approach (Skills Components Model), a more holistic, professionally-oriented approach (Professional Model), and broad, general skills model (General Components Model). This survey followed the task-analytic approach and will be contrasted with the types of information obtained through other approaches.

Introduction

The purpose of the survey reported here was to identify and rank order the software operations used by Twin Cities area computer users in the major office software applications: word processors, spreadsheets, data bases, business graphics, and electronic mail. Two curriculum uses may be possible as a result:

- Identification of the high priority software features to teach to beginning learners who seek office employment; and
- Identification of high priority in-service education features for employed computer users.

The following sections describe the background for this survey of office computing tasks, review of related literature concerning job analysis, the data collection procedures, the format of the questionnaire, a brief profile of the respondents, findings from the survey, and conclusions about survey research for developing microcomputer curriculum.

Background of This Study and Review of Literature

Several job analysis approaches are available to describe workplace requirements for the purpose of developing employment-related curricula. With rapid changes in new technologies, business use of computers is no longer limited to standardized processing functions, but also includes diagnostic and problem-solving functions. To respond to these increased expectations, consideration of alternative approaches to job analysis is imperative for understanding new skill demands in today's workplace. This study provides an example of using a task-analytic approach to determine the job requirements of computer users in a single metropolitan area.

Currently, three different job analysis approaches are available to business educators as guides for curriculum development (Bailey & Merritt, 1995). One is a task-analytic approach (Skills Components Model) to describe job duties, tasks, skills, and generally broad employment competencies. The survey reported here followed this approach and will be contrasted with the types of information that can be obtained through other approaches. The second major approach is a professionally oriented, more holistic approach (Professional Model) that seeks to understand job requirement in specific work settings. The third approach is a broad, general skills model (General Components Model) that can be identified as an attempt to interpret employment requirements very broadly for curriculum development. This third model differs from the first two in that it is intended to extend beyond the requirements of a single job-category or occupational group. These three approaches are described below along with the assumptions they imply about curriculum development and their relative prominence in business education curriculum development efforts.

As will be seen, business education has depended largely on the first approach mentioned above, that of job task analyses, to describe needed job competencies and derive educational program requirements. However, particularly because of the need to respond to the dynamic nature of increased use of computing technology in business offices (and elsewhere), job competencies are being viewed more broadly. Examples of alternative, more holistic work analysis procedures will be presented, even though these have not yet been used extensively for analyzing employment requirements in business offices.

Recent interest in examining job analysis approaches stems from a national concern about skill standards. The 1994 Goals 2000: Educate America Act established a National Skill Standards Board to promote the development of a national system of voluntary industry-based skill standards. The purpose of such standards is to strengthen American economic competitiveness by increasing the educational accomplishments of all students through stronger links between school curricula and employment expectations. The purpose of skill standards is two-fold (Bailey & Merritt, 1995):

- in the short-term, to provide information to students, job applicants, and employers so that job expectations and hiring requirements can be communicated; and,
- in the long-term, to provide information to reform both schools and work places in ways responsive to high-performance work systems.

The second purpose above corresponds to the goals of this project in that the intent is to provide guidance to curriculum developers in business education. The urgency of this goal can be seen in the national attention currently being given to the development of a wide-range of skill standards. Of particular relevance for business educators, one category in which such skill standards have already been developed is that of administrative support (V-TECS and Professional Secretaries International, 1996).

Bailey and Merritt (1995) identify two broad conceptualizations of skills that have been used: the Skill Components Model and the Professional Model. The models differ with regard to their conceptualization of skill and the role of the worker in the development and governance of the standards system. Each of these will be described below, along with the General Components Model, and their current application to business education programs will be identified.

Skills Components Model

The Skills Components Model can briefly be summarized as based on the following assumptions about the work setting:

§ Limited Worker Roles
§ Focus on Dispositions
§ Focus on Job Tasks
§ Generic or Academic Skills are Foundation for Specific Tasks
§ Higher Skill Means Performing More Tasks
§ Managers/Supervisors Have Control

Work settings supportive of the Skills Components Model have characteristics labeled as "Tayloristic" in their orientation to work and supervision. Planning and control reside in the manager, and precise instructions are provided to workers who carry out repetitive procedures under close supervision. Time-and-motion studies may have been the basis for decisions about the most efficient work practices.

Some might question whether clerical work has ever fit this model, though it is likely that clerical and other office work is highly procedure-bound. In fact, word processing centers in many businesses in the 1970s through 1980s were major exemplars of work standardization, work measurement, and productivity standards. However, because office staffs have historically been important participants in the communications channels of an organization, there is a limit to the extent to which job performance can be anticipated and pre-specified. Office staff, such as secretaries, needs to be responsive to a wide range of customer and internal-communication needs. This means that judgment, discretion, and problem-solving skills have been important job requirements. Relatively in-depth company knowledge is needed to know how to acquire information, judge its integrity, and decide with whom it may be shared. Even so, task analysis following the Skills Components Model has been the approach followed by several projects to understand office work and the job requirements of persons in office support roles.

According to Bailey and Merritt (1995, p. 12),

> The skill components model ... has a tendency to generate a proliferation of occupational categories. If occupations are thought of an as accumulation of well-defined tasks, then it becomes necessary to establish different occupations or job definitions each time there is a different accumulation of tasks. ...Perhaps the best example of the explosion of job titles is the *Dictionary of Occupations Titles* (DOT), which includes definitions for over twelve thousand occupations.

The following are examples of the tools for carrying out Skills Components Job Analysis:

§ DACUM (Develop A Curriculum)
§ V-TECS (Vocational-Technical Consortium of States)
§ Functional Job Analysis (FJA, used to develop the DOT)

The DACUM process was originally developed in Canada and is widely used by community colleges to develop employment-related curricula (See the *Wisconsin Technical College System Office Systems Technology Core Curriculum Revision Project*, OST Curriculum Team, 1998). Its refined form has been used recently as the primary method for developing the applied curricula for Tech Prep programs (Norton, 1993). The DACUM process involves seven procedural steps:

1. Committee orientation to the DACUM process,
2. Occupational/job review to arrive at a mutually acceptable working title(s) for jobs and specialization areas,
3. Identification of duties or general functional areas of responsibility under which tasks will fit,
4. Identification of specific tasks performed in each duty area (each statement including an action verb, object, and one or more qualifying words),
5. Review and refinement of a task and duty statement,
6. Identification of related requirements such as general knowledge and skills, tools and equipment, supplies and materials used, worker traits and attitudes, and future occupational trends/concern, and
7. Task analysis to determine specific steps, performance standards and related requirements.

Information from the task analysis is incorporated into instructional modules, learning guides, and other instructional materials as a final dimension of the process (Norton, 1993). DACUM is facilitated primarily by educators and was developed as a way of bringing business and industry into the developments of educational programs. Robert Norton (1993), who developed the technique, states that DACUM is a "significant technique for initiating needed cooperation (between business and education) in tech prep..." (p. 1). The process, in effect, functions as an "abbreviated version" of the widely known Functional Job Analysis (FJA) process (Wills, 1993).

The DACUM model is considered to be a simplified version of the Functional Job Analysis (JFA) model used to develop the twelve thousand job descriptions in the DOT. The FJA uses a broad functional scale to place workers on a continuum in seven categories (Fine, 1988):

1. Data Functions—complexity in the use of information;
2. People Functions—level of interpersonal skills demanded;
3. Functions that involve using Objects (Things)—physical requirements, typically with machines;
4. Worker Instructions—level of responsibility;
5. Reasoning Development—from common sense to abstract undertakings;
6. Mathematical Development—math skills; and
7. Writing Functions.

Bailey and Merritt (1995) provide this assessment of the DACUM process as a curriculum-development tool:

> DACUM proved to be a job analysis approach that was easily understood by both educational and industrial participants. Overall, DACUM has been widely accepted by the educators and industry leaders involved in the skill standards project. Despite a few minor process-oriented difficulties, DACUM has generated an overall sense of comfort and accuracy surrounding the process and the results that have been produced. (p. 34)

It should be emphasized that although there appear to be some advantages to DACUM, systematic evaluations have not shown it to be superior. Indeed, no clear conclusions have been drawn in regard to the most effective job analysis methodologies (O'Brien, 1989, Rayner & Hermann, 1988; Wills, 1993). Researchers have voiced difficulty in the evaluation of any job analysis method "due to the difficulty of finding appropriate criteria against which effectiveness can be measured... (as well as) the difficulties in defining the occupational area, and in ensuring that each technique is used with a matched representative sample" (Rayner & Hermann, 1988, p. 48).

Like DACUM procedures, the V-TECS (Vocational-Technical Consortium of States) process has been extensively used to develop vocational curricula. V-TECS produces task-based output such as duty and task lists, performance objectives for each task, standards as an observable measure of performance, and sequential task performance steps. V-TECS outcomes also include enabling competencies and related academic skills, a basic essential skills taxonomy, criterion-referenced test item banks, and performance/psychomotor items (Wills, 1993). V-TECS procedures and products have been a visible part of business curriculum development for over two decades. Jorgensen and Schmidt (1980) described use of the V-TECS curriculum guidelines when competency-based education was gaining prominence in education as a whole. The V-TECS model has also recently been used in conjunction with assistance from Professional Secretaries International to develop the national skill standards for the Administrative Support field (V-TECS and Professional Secretaries International, 1996).

The impact of the skill components model of business curriculum planning and the resulting instructional recommendations can be seen by examining general professional methods textbooks directed toward employment preparation. The second edition of *A System for Teaching Business Education* (Schrag & Poland, 1987) is an example of drawing heavily on job descriptions resulting from applications of task analysis. Schrag and Poland based their chapter entitled "Establish Competencies" on the use of the *Occupational Outlook Handbook* that is derived from the *Dictionary of Occupational Titles*. In addition, the establishment of instructional objectives draws upon the major job analysis projects from the 1960s in business education. These projects used task analysis as the major means of data collection, namely, the work by Crawford (1967) and Ertel (1968) for marketing jobs and the New Office and Business Education Learning Systems (NOBELS) for office jobs. The NOBELS project was a major undertaking with wide-ranging impact through publications by Huffman and Brady (1968), Lanham (1970), Huffman and Gust (1970), and Erickson (1971). According to Schrag and Poland (1987),

> Erickson's contribution to NOBELS remains a benchmark, for in his analysis of 300 beginning-to-intermediate office jobs, he categorized the tasks into ten groups. While some tasks in those categories may have changed somewhat because of the increased use of technology in the office, the categories themselves remain unchanged after almost 20 years. Research is needed to determine whether the proportions shown [in the list below] are still relevant, although analysis of current articles in business literature suggest that number 1, communicating with others (interpersonal relations), continues as a dominate need. (pp. 28-29)

As will be shown in further discussion, parts of this list have remained remarkably "durable." This is the Erickson (1971) list, in rank order by frequency of performance, of the top ten tasks performed by beginning office workers in the late 1960s.

1. Communicating with others (interpersonal relations)
2. Sorting, filing, and retrieving
3. Typewriting

4. Checking, computing, and verifying
5. Collecting and distributing
6. Operating business machines
7. Operating automatic data processing equipment
8. Taking dictation
9. Supervising, planning, and training
10. Analyzing procedures and flow charting

In addition to the Crawford (1967) and NOBELS task analysis results, Schrag and Poland also point to the V-TECS (Vocational-Technical Education Consortium of States) model and the Interstate Distribution Education Curriculum Consortium (IDECC), both developed in the 1970s, for curriculum development guidance.

The most recent comprehensive professional teaching methods textbook for business educators by Calhoun and Robinson (1992), *Managing the Learning Process in Business Education*, provides much less insight than do Schrag and Poland (1987) into the source of curriculum decisions. They do make reference to the *Occupational Outlook Handbook*. They also draw heavily on task-analysis models for describing learning outcomes and preparing behavioral objectives. Both Schrag and Poland (1987) and Calhoun and Robinson (1992) follow a behaviorist model of arranging learning objectives into hierarchies and organizing them using Bloom's Taxonomy into cognitive, affective, and psychomotor domains in order to guide instruction.

In assessing the effectiveness of both the DACUM and V-TECS models, and also the FJA model used for the *Dictionary of Occupational Titles*, Bailey and Merritt (1995) consider the most significant disadvantage to be the focus of each model on dissecting work-based activities into component parts. This is seen as reinforcement of a narrow conceptualization of workers' roles within the organization—the skill components model as a reinforcement of a Tayloristic system of job design. Such a task-focused model, in turn, leads to instructional materials that are highly task specific. The consequence is that most job analysis methods, by breaking down jobs into their specific component parts, may reduce worker roles to a series of unrelated job functions. As such, this analysis and the resulting instructional materials may, in turn, fail to provide an adequately integrated description of jobs. Hanser (1996) considers such instructional materials to be counterproductive, or not likely to help students meet current employment expectations. He maintains that "one breakdown in the school-to-work transition process stems from the inability of traditional job and task analysis methods to help us identify, understand, and communicate the skills needed for success in the high performance workplace. As a consequence, new methods are needed" (p. x).

In the business education literature, asking specifically what technology to teach has commonly been approached through the identification of computing tasks. Recent articles (Alexander, 1996, 1998; Arney, 1998; Chalupa, 1997; Chalupa & Sormunen, 1996; Davis, 1997; Davis & Gonzenbach, 1995; Gatlin, Rogers, & Kordsmeier, 1995; Gonzenbach, 1998; North & Worth, 1997; Nourse, 1997; Perry, 1998; Smith, Jones & Lane, 1997; Smith, Nelson & Mayer, 1996; Wentling, 1990; Zhao, 1996; and Zhao, Ray, Dye & David, 1998) have addressed questions about the need for broad employment competencies as well as about the uses of specific computing software. The purpose has been to provide direction for curriculum development at the level of general goal statements and for equipment and software selection.

A common problem with such survey findings is the breadth of the competencies described and the narrow extent of curriculum guidance provided. For example, it may be considered self-evident that employed computer users would need to know how to use a keyboard and a mouse (Zhao, 1996; and Zhao, Ray, Dye & David, 1998). It may also not be a surprise to learn that word processing and spreadsheets are the most commonly used business application packages (Arney, 1998), or that when using a spreadsheet, retrieving a spreadsheet file might be a "very essential" competency (Perry, 1998). Findings such as these provide little direction to curriculum designers on what to include in technology-related courses among the many software features that might be taught.

Any collection of survey data that extracts isolated software features from broader descriptions of office documents and business goals is necessarily incomplete and may appear trivial. The competencies identified may be largely implicit in proficient use of the software. This project, which continues to use a task-analytic approach, tries to extend understanding of computer use by finding a middle point between narrow software features (such as saving files) and extremely board features, such as the brand of software in use. Because task analysis approaches should be complemented by both broader and deeper examinations of office work, two alternative approaches to work analysis are described below.

Professional Model

One alternative is the Professional Model of job analysis. The term "professional" is used to capture the complexity of jobs on "high-performance" organizations where workers have more discretion in their jobs and more responsibility for planning and problem solving. While the importance of specific skills is still dominant, responsiveness to the application of those skills in specific work contexts demands flexibility not present in "traditional" organizations with highly supervised work. In contrast to the Skills Components Model, Bailey and Merritt (1995) describe the Professional Model as based on the following assumptions about work:

- § Knowledge Base
- § Ideal of Service
- § Work is Situation Specific
- § Proactive, Nonroutine Behavior
- § Specific Skills are Foundation for More Complex Problem Solving
- § High-Performance Workplace Requires Broader Worker Authority

The tools available for Professional Model Job Analysis are generally more complex than those used for the Skills Components Model, since the intent is to look at jobs more broadly and to incorporate the social context of which they are a part. Some of the Professional Model job analysis tools include the following:

- § Position Analysis Questionnaire
- § Hays Associates Profile System
- § Critical Incidence Technique
- § Occupational Analysis Inventory
- § O•NET (Occupational Information Network)

While Bailey and Merritt (1995) do not think the resulting job descriptions have fully met the goal of being context-sensitive, the professional approach to job analysis asks that workers play a larger role in defining their work than with traditional task-analysis. Jobs descriptions are still oriented toward individuals and single jobs, not group oriented. The resulting skills standards using the approaches listed above can look very much like those based on the DACUM or V-TECS approach—a specialized occupational profile that describes workers by identifying a list of their skills as related to specific job tasks. Bailey and Merritt (1995) contend that "Most of the broader occupational analysis methodologies ... include the contextual situation and other relevant aspects of the worker in the data they collect; nevertheless, they fail to incorporate these broader, external, social aspects and definitions of the job into the analysis" (p. 37). But, trying to account for the broader social aspects of job setting is part of the problem of specifying employment requirements.

Future employees need to be prepared for work settings that cannot be predicted with precision, and they need to be responsive to the continual demand to learn on the job—to do their jobs by learning their jobs (Dede, 1996; Hart-Landsberg, Braunger, Reder, & Cross, 1992). In fact, the dynamic nature of employment requirements is a key factor in movements to use job analysis approaches that are alternatives to the two extremes depicted above as the Skills Components or Professional Models. Formal task analysis may be more vulnerable than the more socially complex and holistic Professional Model because changing technology and organizational and economic upheavals have all served to alter the nature of work on a recurring basis. Learning to adjust to changing organizational contexts (and to participate in planning and implementing such changes) is as important to prospective jobholders as learning occupational job tasks.

Jobs in "high-performance," "high-technology," "global" organizations ask more of employees than the more predictable, static jobs that may have characterized offices and other work settings in the past—the "industrial age". No longer is it possible to teach students work procedures that can be anticipated with confidence—not even the format of letters or the billing and payroll practices of a firm. The most predictable aspect of future jobs is that use of technology will play an increasing role in carrying out meaningful work. The challenge is to prepare students who have a deeper understanding of workforce requirements. This includes three distinct types of technology-related understanding:

- § understanding the technology potentially available,
- § understanding the social expectations for using that technology, or the business purposes being served, and
- § understanding who is expected to be able to use technology in certain ways, the roles of various personnel in an organization.

While the Professional Model has the promise for greater focus on the social context of work within a given organization, it is weak in generalizability. Professional job descriptions are necessarily tied to a particular firm with a history that is as important to job description as specific technical skills. An alternative, the General Competency Model, describes job requirements that are both more general than those resulting from the Professional Model and less task-oriented than those derived through the Skills Components Model.

General Competency Model

Several products of new job analysis approaches are identified here as part of a General Competency Model. They carry the names of the SCANS skills (Secretary's Commission on Achieving Necessary Skills, 1991), New Work Skills (Resnick & Wirt, 1996), Work Force Basics (Carnevale, et al, 1990), and Generic Skills (Stasz, McArthur, Lewis, & Ramsey, 1990). None of these approaches to identifying job descriptions and job requirements attempts to explicitly incorporate the social context of work into the descriptions. However, the developers of all three models would agree that both learning and applying job competencies necessarily requires a social context.

One of the earliest statements of new workplace competencies is found in research by Levin and Rumberger (Raizen, 1989) that sought to describe "generalizable skills" that would allow an individual to become effective in almost any setting. (A comprehensive summary of the literature in developing descriptions of "generic skills" can be found in Stasz, et al, 1990.) The focus of these skills is on traits or skills possessed by the individual person and not necessarily tasks found in a particular occupation or requirements derived from specific work tasks. This is a different perspective from the Skills Components Model or Professional Model. As will be seen in the competency lists presented below, several cognitive competencies are consistently included:

- § Communication
- § Reasoning
- § Problem Solving
- § Obtaining and using information
- § Ability to continue learning

(Raizen, 1989, p. 10)

Also prominent are personal habits and dispositions of learners such as,

§ Willingness to take initiative and perform independently
§ Ability to cooperate and work in groups
§ Competence in planning and evaluating one's own work and the work of others
§ Understanding how to work with persons from different backgrounds and cultures
§ Ability to make decisions
(Raizen, 1989, p. 10)

During the late 1980s time period, a survey of Michigan employers (Roeber, Brown, & Stemmper, 1989) gave highest priority to three groups of skills, the first of which is related to the dispositions and attitudes included from Levin and Rumberger's work:

Personal Management Skills
  Self-control
  Honesty
  Integrity
  Pride in One's Work
  Respect for Others
Academic Skills
Teamwork Skills

The dominance of dispositions and other personal traits will be seen in all of the following General Competency lists. These situation-contingent traits present a particular challenge to teachers, since these are not student outcomes that can either be taught directly through didactic instruction nor developed in a single learning experience. These traits are the result of a long series of life experiences that may be reinforced, tailored, or perhaps re-directed through teaching/learning engagements. These traits are certainly part of and by-products of all other life experiences, including experiences in formal educational settings. Examining these traits makes apparent the necessarily ambiguous nature of all the components of the competency lists. None of the competencies can be taught directly, but, rather, depend upon other subject-matter or work-related content that will call forth their demonstration. The challenge for teachers is to understand what these general competencies mean within the context of the particular areas of their teaching expertise.

The SCANS competencies are perhaps the most widely used model for describing job competencies in use today. Its research base is rather narrow. The initial competency list was derived from the literature and advice from experts. To validate the resulting competencies, job interviews were conducted with jobholders and their supervisors. A total of 50 jobs were analyzed to develop the final competency list. The wide range of participants in the process has lead to the credibility of the SCANS competencies as a broad-based, generally well understood starting point for talking about employment needs. These are the five SCANS competencies:

Resources: Identified, organizes, plans and allocates resources
  A. *Time* - Selected goal relevant activities, ranks them, allocates time, and prepares and follows schedules
  B. *Money* - Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives
  C. *Material and Facilities* - Acquires, stores, allocates, and uses materials or space efficiently
  D. *Human Resources* - Assesses skills and distributes work accordingly, evaluates performance and provides feedback

Interpersonal: Works with others
  A. *Participates as Member of a Team* - Contributes to group effort
  B. *Teachers Others New Skills*
  C. *Serves Clients/Customers* - Works to satisfy customers' expectations
  D. *Exercises Leadership* - Communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies
  E. *Negotiates* - Works toward agreements involving exchange or resources, resolves divergent interests
  F. *Works with Diversity* - Works well with men and women from diverse backgrounds

Information: Acquires and uses information
  G. *Acquires and Evaluates Information*
  H. *Organizes and Maintains Information*
  I. *Interprets and Communicates Information*
  J. *Uses Computers to Process Information*

Systems: Understands complex inter-relationships
  A. *Understands Systems* - Knows how social, organization, and technological systems work and operates effectively with them
  B. *Monitors and Corrects Performance* - Distinguishes trends, predicts impacts on system operations, diagnoses deviations in systems' performance and corrects malfunctions
  C. *Improves or Design Systems* - Suggests modifications to existing systems and develops new or alternative systems to improve performance

Technology: Works with a variety of technologies
  A. *Selects Technology* - Chooses procedures, tools or equipment including computers and related technologies
  B. *Applies Technology to Task* - Understands overall intent and proper procedures for setup and operation of equipment
  C. *Maintain and Troubleshoots Equipment* - Prevents, identifies, or solves problems with equipment, including computes and other technologies
  (Secretary's Commission on Achieving Necessary Skills, 1991, p. 12)

In addition to the five competency areas, the SCANS reports identified a three-part foundation of intellectual skills and personal qualities that are part of each of the five competencies. These three parts are the following:

Basic Skills:	Reading, writing, mathematics (arithmetical computation and mathematical reasoning), listening, and speaking;
Thinking Skills:	Creative thinking, making decision, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning; and
Personal Qualities:	Individual responsibility as well as self-esteem, sociability, self-management, and integrity. (Secretary's Commission on Achieving Necessary Skills, 1991, p. 15)

Those who participated in the original development of the SCANS competencies have continued to refine them, incorporating general competencies with the educational goal statements of other countries. The primary impetus for such national goal development has been the requirements of the workplace. Both the SCANS competencies and the New Standards Project (Resnick & Wirt, 1996), however, have sought to describe standards for the development of broad competencies that could be integrated throughout the school curriculum and presented as goals for all students, not just those preparing for employment after high school graduation. The nine competency areas defined by the New Standards Project, along with key concepts within each one, are listed below:

1. **Collecting, Analyzing, and Organizing Information:** Locate, Sift and Sort, Select, Present, Evaluate, Expectations, Purposes
2. **Communicating Ideas and Information:** Purpose, Audience/Context, Message, Clarity, Coherence, Oral, Written, Graphic, Nonverbal, Feedback
3. **Planning and Organizing Resources:** Time, Money, People, Facilities/Materials
4. **Working with Others and in Teams:** Purpose/Objectives, Roles/Perspectives, Time/Outcomes
5. **Using Mathematical Ideas and Techniques:** Purposes/Objectives, Procedures, Precision/Accuracy, Interpretation/Evaluation
6. **Solving Problems:** Practical Difficulty, Social Situation, Well-Structured, Ill-Structured, Potential Improvement/Opportunity
7. **Using Technology:** Appropriate Choice, Breakdowns, Interpreting
8. **Understanding and Designing Systems:** Systems Concepts, such as input/output, dependencies, interactions, constraints, algorithms, decision rules, and Working Smarter through understanding purposes and resources
9. **Learning and Teaching on Demand:** External Demands, Individual Choice regarding goals and learning tools, Self-Assessment, Shared Knowledge, Sensitive to Feedback
   (Resnick & Wirt, 1996, pp. 429-451)

As a way of comparison, the following are the "Workplace Basics: The Skills Employers Want" as defined by Carnevale, et al (1990) with the support of the US Dept. of Labor and the American Society of Training and Development:

- **§Three R's**
    - Reading
    - Writing
- **§Personal Management**
    - Self-esteem
    - Goal Setting
    - Motivation
    - Personal Career Development
- **§Group Effectiveness**
    - Interpersonal Skills
    - Negotiation
    - Teamwork
- **§Organizational Effectiveness and Leadership**
- **§Competence in Reading, Writing, and Computation**
- **§Listening and Oral Communication**
- **§Creative Thinking and Problem Solving**
- **§Learning to Learn**

The General Competency Models have been reconfirmed as useful tools for describing work requirements and the corresponding instructional goals. Stasz, et al (1990, 1992, 1996) have refined the definitions and organization of the work-related learning outcomes called "generic skills. These are summarized below, as described in the most recent report of an extended research project examining both the nature of generic skills and ways they may be taught effectively both in schools and work-based learning settings (Stasz & Kaganoff, 1997):

1. **Technical Skills and Competencies**
    - Work procedures
    - Fundamental principles and concepts underlying procedures
    - Analytical judgment
    - Computer literacy
2. **Generic Workplace Skills**
    - Problem solving
    - Communications
    - Teamwork
3. **Personal and Social Skills**
    - Dispositions
    - Attitudes
    - Motivations
    - Volition

4. **Broad occupational understanding ("all aspects of the industry")**
   Planning
   Management
   Finance
   Technical and Production Skills
   Technology
   Labor Issues
   Community Issues
   Health, Safety, and Environmental Issues

All of the above competency areas are interrelated; no single category stands alone as a meaningful job requirement or expectation; and all are inherently ambiguous competencies and dependent on specific subject matter or work settings for fuller development. None of these competencies can be taught directly through demonstration, exhortation, or any other didactic teaching approach, since all take on different meanings depending upon the specific work context. In the workplace, the competencies and dispositions associated with success on the job are often defined by a community of practice or depend on the nature of the work, such as specific tasks assigned and the quality standards in the immediate work group.

Even given the ambiguous nature of the SCANS competencies, the New Standards Project competencies, and the Generic Skills from the NCRVE/RAND projects, each set provides the basis for describing job-related competencies. These standards, thereby, have become appropriate standards for business programs preparing students for work. They have provided fundamental direction for research and curriculum development. Sormunen, et al (1996) used the SCANS competencies to develop behaviorally anchored measurement tools for assessing workforce preparedness. Haynes (1992) used the similar Work Force Basics developed by Carnevale, et al (1990) to describe the skills that should be part of business curricula. Miles (1994) used the Carnevale, et al (1990) Work Force Basics and the SCANS competencies as the foundation for a New York State study to validate entry-level skill requirements, as did Peel, Joyner, and Volk (1998) for North Carolina skill standards.

Briggaman (1993) identified both the national goals from America 2000 and the SCANS competencies as significant reports that will drive the thinking of educational policymakers. She saw these being the focus of assessment development processes, a basis for responding to images of a global economy, and the standards to use for curriculum development that is characterized by attention to interpersonal skill training, problem solving, and experienced-based learning. Both the content standards of the National Business Education Association (NBEA, 1995) and the SCANS competencies are identified as the basis for curriculum development in the most recent *NBEA Yearbook* (Stout, 1997). In addition to these recommendations in the business education literature, the use of SCANS competencies and generic skills instruction has been part of the general vocational education literature encouraging the integration of vocational and academic instructional programs (Bailey, 1995; Stasz, et al, 1995).

Task-Analysis Approach Used in Current Study

Business education has depended heavily on job task analysis to describe needed job competencies and derive educational program requirements. The usefulness of this approach for curriculum development is very dependent upon the breadth of the job tasks described. Some researchers have described the competencies of computer users by ranking the most frequently used types of hardware and software, such as dominance of the Windows platform, Word as a word processor, and Excel as a spreadsheet choice (Arney, 1998; Zhao, 1996, and Zhao, Ray, Dye & David, 1998). This approach may be considered too broad because the same information can be obtained easily from ordinary news articles. Little additional curriculum guidance may be provided. On the other hand, a skills-analysis approach can be too narrow if it reconfirms the importance of self-evident software features, such as saving and retrieving files and basic editing functions (Perry, 1998).

An alternative task-analysis approach would seek a middle ground between the extremes of confirming either major software choices or conspicuously essential software features. This middle-level approach could include examination of specific types of office documents or business functions in relation to the use of major software functions. The purpose of this study was to use such middle-level questions to obtain greater understanding of what computer users do so that curriculum decisions can be made about the major software functions to be taught and the types of documents to use. In addition, the instructional needs of employed computer users were identified in relation to these same middle-level software functions.

The audiences for these curriculum recommendations could be categorized as teachers of two groups of students:

§ teachers who prepare novices, or new computer users, for employment, and
§ teachers who work with already employed, experienced users, seeking upgrading of their computer skills.

The highest and lowest software features in terms of frequency of use were identified for a variety of office documents. This information is relevant for the novice learner who needs to be prepared for commonly occurring employment tasks. In addition, the highest and lowest training needs for various software features for a variety of office documents were identified for experienced users. It was assumed that the software features used most frequently by employed computer users were features that should have top priority for inclusion for novices in any instructional program. Further, it was assumed that the training needs of employed computer users would be of interest particularly to post-secondary teachers who provide "up-grading" workshops to experienced computer users.

Questionnaire

The questionnaire was developed by the researcher and a post-secondary business teacher using the business education literature and their experience as computing teachers. The software applications included in the questionnaire were limited to word processors, spreadsheets, databases, presentation graphics, and E-mail.

The questionnaire was divided into several separate sections, the first half seeking demographic data and software learning history, and the second half asking about the use of and training needs for major software features. The major software features in word processing, contained three areas: document creation, formatting, and printing. Types of documents included the following:

Document Creation/Composition at Computer/Keying
Letters/Memo/Short Reports
Formal Reports/ Manuscripts
Internal Newsletters/Policy Statements
External Newsletters/Announcements/ Advertising
Presentations
Forms
Envelopes

Performance of Document Formatting (during or after composition)
(Polishing up and proofing document, fine-tuning alignment, use of fonts, symbols, formulas, graphics, or borders)
Letters/Memo/Short Reports
Formal Reports/ Manuscripts
Internal Newsletters/Policy Statements
External Newsletters/Announcements/ Advertising
Presentations
Forms
Envelopes

Document Printing
Letters/Memo/Short Reports
Formal Reports/Manuscripts
Internal Newsletters/Policy Statements
External Newsletters/Announcements/ Advertising
Presentations
Forms
Envelopes
Merge Data from a Database (e.g. mail-merge).
Merge Data from a Spreadsheet (e.g. charts).

Spreadsheet uses broadly focused on the creation of various reports, use of various data manipulation tools, and types of printing or distribution, such as graphics and electronic data transfer. The complete list is the following:

Report and Tables: Composition at Computer/Keying
Accounting Statements
Budgeting/ Projecting
Cost/Sales Analysis
Investment Projections
Personnel Records
Unit Performance Comparison

Performance of Data Manipulation (during or after composition)
(Testing, polishing up and proofing document, fine-tuning alignment, use of fonts, symbols, formulas, graphics, or borders)
Scenarios/ What If?
Use of Advanced Statistical Operations (regression, cross-tabs, etc.)
Use of Data Tables
Use of Financial Functions (FV, PV, Rate, etc)
Use of Logical Comparisons (If, Choose, etc)
Use of Pivot Tables
Use of Statistical Functions (Avg, Max, Stdev, etc)

Document Printing/ Presentation
Data Graphing
Data Transfer from/to a Database
Data Transfer to a Word Processor
File Transfer-Internal
File Transfer-Off Site
Formal External reports
Internal reports

For both word processors and spreadsheets, respondents were ask to indicate their *use* of styles, templates, and macros, and, as a separate question, whether they *created* styles, templates, and macros.

The questions about the use of databases included both types of business records and software features. The following illustrate this list:

Database Creation/Composition at Computer/Keying
Clients/Accounts
Mailing Lists
Personnel
Products/Inventory

Performance of Database Management (during or after composition)
Analysis/Data Transformation
Creating Relational Links
Data Updating
Data Validation
Quality Control
Sorting/Indexing
Use Queries

Data Retrieval/Report Writing
Data Graphing
Data Transfer to a Spreadsheet
Data Transfer to a Word Processor (e.g. mail-merge)
File Transfer—Internal
File Transfer—Off-Site
Formal Reports/External
Internal Reports

Use of Command Language
Creation of Queries
Use of Input Forms
Use of Macros

Questions about the use of presentation graphics included the following business purposes and/or software features:

Presentation Creation: Composition at Computer/Keying
Create/Draw Graphics
External Training/Announcements/ Advertising
Formal Reports/Presentations
Incorporate Existing Clip Art
Incorporate External Objects
Incorporate Sound or Video
Internal Training/Staff Updates
Short Text-only Presentations

Document Printing
Create 35mm Slides
Create Transparencies
Display Computerized Slide Show
Print Paper Copy of "Slides"
Print Paper Copy of "Slides" and Notes

Finally, the following are the e-mail features that respondents were asked to rate:

Document Creation: Composition at Computer/Keying
External Messages/Announcements/ Advertising
Formal Reports/ Manuscripts
Internal Letters/Memo/Short Reports
Internal Messages

Document Transmission-Internal
Formatted Enclosures/Attachments
Plain Text Message
Text Enclosures/Attachments

Document Transmission-External
Formatted Enclosures/Attachments
Plain Text Message
Text Enclosures/Attachments

Document Receipt
Formatted Enclosures/Attachments
Plain Text Message
Text Enclosures/Attachments

Three common questions were asked about each of software features in each of the applications categories—word processing, spreadsheets, databases, presentation graphics, and E-mail. The first question asked *who performed the task* at the computer, the respondent, an assistant, or both. The second question asked *how often* the task was performed or feature was used: daily, weekly, monthly, or rarely/never. The third question asked about the need for further *training needs* requesting a "yes" or "no" response.

Pilot testing of the questionnaire consisted of asking six employed computer users to complete it and provide their judgments about clarity and completeness of the questions. After revisions in response to this feedback, the questionnaire was mailed to 200 corporations in the Twin Cities area of Minnesota.

Collection of Data

On January 30, 1996, the survey was mailed to 200 selected corporations in the Twin Cities area of Minnesota and addressed to personnel managers. Corporations were selected because of their membership in the Personnel Managers Association in the Twin Cities Area. Within two months, 64 surveys have been received. Follow-up postcards were then sent to all non-respondents. The responses generated by the first mailing and follow-up postcard totaled 81 or 41%. The actual number of surveys used for data analysis was 76 or 38%.

The personnel managers were asked to distribute the questionnaires to office staff with a variety of job titles that used computers. Respondents of interest for this study were not computer programmers or information systems staff, but the growing number of non-technical individuals who use computer-based technologies throughout their workday, such as, secretaries, managers, research staff, supervisors, and other support staff.

Profile of Respondents

Most of the 76 respondents worked for an organization that could be categorized as manufacturing, service, health care, finance, or insurance and real estate. A majority of the respondents worked in an organization that employed between 100 and 500 people. The job titles of most respondents were secretarial or supporting staff. Most respondents stated that they first learned how to use computers on the job or through a combination of coursework and on-the-job experience. The acquisition of specific software skills was also primarily from on-the-job training. All respondents had worked at least one year; most had worked for over six years.

Findings

Findings are presented in two sections: those software features which are used most frequently, and thus would be important to teach to novices who are seeking office employment; and those software features about which experienced computer users would like additional training, and thus would be potential software features to include in workshops for experienced users.

Frequently-Used Software Features

To answer the question about how often a software feature was used, a frequency distribution was tabulated on the basis of daily (rank of 4), weekly (rank of 3), monthly (rank of 2), rarely or never (rank of 1), or not ranked (rank of 0) for each software feature. The frequencies were weighted (number of respondents times the frequency weight), and a mean for each feature was calculated. The rankings in each table are the average ratings for each software feature based on the number of respondents who said they used a particular application. If a respondent used an application, but did not mark a feature, their score was recorded as a "0". Thus, average ranking could be less than 1. The highest (most frequent, rank of 4) and lowest (less frequent, rank of 0) scores for each major software function are reported.

Tables 1 through 9 show the frequency-of-use rankings for the following software applications:

- ·Table 1 - Word Processing: (Document Creation, Formatting, Printing)
- ·Table 2 - Word Processing: (Use of Styles, Templates, Macros)
- ·Table 3 - Word Processing: (Creation of Styles, Templates, Macros)
- ·Table 4 - Spreadsheets: (Composition, Data Manipulation, Printing)
- ·Table 5 - Spreadsheets: (Use of Styles, Templates, Macros)
- ·Table 6 - Spreadsheets: (Creation of Styles, Templates, Macros)
- ·Table 7 - Data Bases
- ·Table 8 - Business Graphics
- ·Table 9 - Electronic Mail

These rankings can be a reference for business educators when they develop curricula for students who are novices and who, therefore, need to be taught the most frequently used software features for employment preparation in conjunction with the major types of business documents. Less frequently used software features can be made optional or excluded from the instructional program.

Table 1
Frequency of Use of Software Feature—Word Processing (Document Creation, Formatting, Printing) N = 75

Highest Use	Weighted Rating
1. Document Creation: Letters/Memo/Short Reports	3.49
2. Document Formatting: Letters/Memo/Short Reports	3.35
3. Document Printing: Letters/Memo/Short Reports	3.16
4. Document Creation: Envelopes	2.49
Lowest Use	
1. Document Printing: External Newsletters/ Announcements/Advertising	1.00
2. Document Formatting: External Newsletters/ Announcements/Advertising	1.04
3. Document Printing: Internal Newsletters/ Policy Statements	1.08
4. Document Creation: External Newsletters/ Announcements/Advertising	1.09

Key: 4 - Daily 3 - Weekly 2 - Monthly
1 - Rarely/Never

Table 2
Frequency of Use of Software Feature—Word Processing (Use of Styles, Templates, Macros) N=75

Highest Use	Weighted Rating
1. Use of Styles: Letters/Memo/Short Reports	2.44
2. Use of Styles: Envelopes	1.92
3. Use of Templates: Letters/Memo/Short Reports	1.80
4. Use of Styles: Forms	1.63
Lowest Use	
1. Use of Macros: Formal Reports/Manuscripts	0.61
2. Use of Macros: Presentations	0.63
3. Use of Macros: External Newsletters/ Announcements/Advertising	0.63
4. Use of Macros: Internal Newsletters/ Policy Statements	0.67

Key: 4 - Daily 3 - Weekly 2 - Monthly
1 - Rarely/Never

Table 3
Frequency of Use of Software Feature—Word Processing (Creation of Styles, Templates, Macros) N=75

Highest Use	Weighted Rating
1. Creation of Styles: Letters/Memo/Short Reports	1.52
2. Creation of Styles: Envelopes	1.15
3. Creation of Styles: Forms	1.03
4. Creation of Templates: Letters/Memo/Short Reports	0.92
Lowest Use	
1. Creation of Macros: Presentations	0.59
2. Creation of Macros: Internal Newsletters/ Policy statements	0.59
3. Creation of Macros: External Newsletters/ Announcements/Advertising	0.61
4. Creation of Macros: Formal Reports/Manuscripts	0.64

Key: 4 - Daily 3 - Weekly 2 - Monthly
1 - Rarely/Never

Table 4

Frequency of Use of Software Feature—Spreadsheet (Composition, Data Manipulation, Printing) N=61

Highest Use	Weighted Rating
1. Document Printing: Internal Reports	1.36
2. Document Printing: Data Graphing	1.30
3. Document Printing: Data Transfer to Word Processor	1.16
4. Composition: Personnel Records	1.10
Lowest Use	
1. Data Manipulation: Pivot Tables	0.54
2. Data Manipulation: Advanced Statistical Operations (regression, crosstabs, etc.)	0.59
3. Document Printing: File Transfer-Off Site	0.61
4. Composition: Investment Projections	0.62

Key: 4 - Daily 3 - Weekly 2 - Monthly
1 - Rarely/Never

Table 5

Frequency of Use of Software Feature—Spreadsheet (Use of Styles, Templates, Macros) N=61

Highest Use	Weighted Rating
1. Use of Styles: Personal Records	0.85
2. Use of Styles: Accounting Statement	0.75
3. Use of Styles: Budgeting/Projecting	0.70
4. Use of Styles: Cost/Sales Analysis	0.62
Lowest Use	
1. Use of Macros: Investment Projections	0.46
2. Use of Macros: Cost/Sales Analysis	0.48
3. Use of Templates: Investment Projections	0.48
4. Use of Macros: Unit Performance Comparison	0.49

Key: 4 - Daily 3 - Weekly 2 - Monthly
1 - Rarely/Never

Table 6

Frequency of Use of Software Feature—Spreadsheet (Creation of Styles, Templates, Macros) N=61

Highest Use	Weighted Rating
1. Creation of Styles: Personal Records	0.72
2. Creation of Styles: Unit Performance Comparison	0.64
3. Creation of Styles: Accounting Statements	0.62
4. Creation of Styles: Cost/Sales Analysis	0.62
Lowest Use	
1. Creation of Macros: Unit Performance Comparison	0.44
2. Creation of Macros: Investment Projections	0.44
3. Creation of Templates: Investment Projections	0.46
4. Creation of Templates: Unit Performance Comparison	0.48

Key: 4 - Daily 3 - Weekly 2 - Monthly
1 - Rarely/Never

Table 7

Frequency of Use of Software Feature—Database N=41

Highest Use	Weighted Rating
1. Database Management: Data Updating	2.02
2. Database Management: Sorting/Indexing	2.00
3. Database Management: Use Queries	1.98
4. Database Management: Analysis/Data Transformation	1.66
Lowest Use	
1. Data Retrieval/Report Writing: File Transfer-Off Site Location	0.83
2. Data Retrieval/Report Writing: Data Graphing	0.93
3. Data Retrieval/Report Writing: Formal Reports - External	0.93
4. Data Retrieval/Report Writing: File Transfer - Internal	1.00

Key: 4 - Daily 3 - Weekly 2 - Monthly
1 - Rarely/Never

Table 8
Frequency of Use of Software Feature—Presentation Graphics N=46

Highest Use	Weighted Rating
1. Presentation Creation: Incorporate Existing Clip Art	1.67
2. Presentation Creation: Create/Draw Graphics	1.48
3. Presentation Creation: Formal Reports/ Presentations	1.43
4. Presentation Creation: Short Text-only Presentations	1.39
Lowest Use	
1. Presentation Creation: Incorporate Sound or Video	0.46
2. Presentation Creation: External Training/ Announcements/Advertising	0.76
3. Document Printing: Creating 35mm Slides	0.78
4. Presentation Creation: Internal Training/Staff Updates	0.96

Key: 4 - Daily 3 - Weekly 2 - Monthly
1 - Rarely/Never

Table 9
Frequency of Use of Software Feature—Email N=63

Highest Use	Weighted Rating
1. Document Creation: Internal Messages	3.33
2. Document Creation: Internal Letters/Memo/ Short Reports	2.65
3. Document Transmission-Internal: Plain Text Message	2.63
4. Document Transmission-Internal: Text Enclosures/Attachments	2.03
5. Document Receipt: Plain Text Message	2.02
Lowest Use	
1. Document Creation: Formal Reports/Manuscripts	0.79
2. Document Transmission-External: Formatted Enclosures/Attachments	0.86
3. Document Transmission-External: Text Enclosures/Attachments	1.06
4. Document Transmission-External: Plain Text Messages	1.21

Key: 4 - Daily 3 - Weekly 2 - Monthly
1 - Rarely/Never

Software Training Needs by Experienced Computer Users

To answer the question about whether further training was needed, a frequency distribution was also tabulated for each software feature. For these questions about the same software features as listed previously, respondents were to indicate "yes" or "no" about whether they needed training. The highest and lowest scores in terms of training needs for each major software feature were reported. The numbers in Table 10 through 18 indicate the number of respondents who used the software who said "yes" for the "highest training needs" and the number of respondents who used the software who said "no" for the "lowest training needs."

The tables parallel those presented above for the frequency-of-use rankings of the software features. These tables which now identify training needs are the following:

- Table 10 - Word Processing: (Document Creation, Formatting, Printing)
- Table 11 - Word Processing: (Use of Styles, Templates, Macros)
- Table 12- Word Processing: (Creation of Styles, Templates, Macros)
- Table 13 - Spreadsheets: (Composition, Data Manipulation, Printing)
- Table 14 - Spreadsheets: (Use of Styles, Templates, Macros)
- Table 15 - Spreadsheets: (Creation of Styles, Templates, Macros)
- Table 16 - Data Bases
- Table 17 - Business Graphics
- Table 18 - Electronic Mail

Table 10
Training Needs—Word Processing (Document Creation, Formatting, Printing) N=75

Highest Training Needs	No. of Users "Yes"
1. Document Printing: Merging Data from a Spreadsheet (i.e. charts)	28
2. Document Printing: Merging Data from a Database (i.e. mail-merge)	26
3. Document Creation: Presentation	19
4. Document Formatting: Presentation	18
Lowest Training Needs	**No. of Users "No"**
1. Document Creation: Letters/Memo/Short Reports	61
2. Document Printing: Letters/Memo/Short Reports	59
3. Document Creation: Envelopes	56
4. Document Formatting: Letters/Memo/Short Reports	52

Table 11
Training Needs—Word Processing
(Use of Styles, Templates, Macros) N=75

Highest Training Needs	No. of Users "Yes"
1. Use of Macros: Letters/Memo/Short Reports	24
2. Use of Macros: Presentation	22
3. Use of Macros: Forms	22
4. Use of Macros: Formal Reports/Manuscripts	21
5. Use of Macros: Envelopes	21

Lowest Training Needs	No. of Users "No"
1. Use of Styles: Envelopes	44
2. Use of Styles: Letters/Memo/Short Reports	41
3. Use of Styles: Formal Reports/Manuscripts	40
4. Use of Styles: Forms	39

Table 12
Training Needs—Word Processing
(Creation of Styles, Templates, Macros) N=75

Highest Training Needs	No. of Users "Yes"
1. Creation of Macros: Forms	28
2. Creation of Macros: Letters/Memo/Short Reports	28
3. Creation of Templates: Forms	24
4. Creation of Templates: Letters/Memo/Short Reports	24
5. Creation of Macros: Formal Reports/Manuscripts	24

Lowest Training Needs	No. of Users "No"
1. Creation of Styles: Letters/Memo/Short Reports	33
2. Creation of Styles: Envelopes	31
3. Creation of Styles: Forms	30
4. Creation of Styles: Formal Reports/Manuscripts	28

Table 13
Training Needs—Spreadsheet
(Composition, Data Manipulation, Printing) N=61

Highest Training Needs	No. of Users "Yes"
1. Document Printing: Graphing	19
2. Document Printing: Internal Reports	18
3. Document Printing: Data Transfer to Word Processor	17
4. Data Manipulation: Logical Comparison	17

Lowest Training Needs	No. of Users "No"
1. Document Printing: Internal Reports	24
2. Composition: Accounting Statement	23
3. Composition: Budgeting/Projecting	23
4. Composition: Personal Records	23

Table 14
Training Needs—Spreadsheet
(Use of Styles, Templates, Macros) N=61

Highest Training Needs	No. of Users "Yes"
1. Use of Macros: Accounting Statement	16
2. Use of Macros: Budgeting/Projecting	15
3. Use of Macros: Cost/Sales Analysis	15
4. Use of Macros: Unit Performance Comparison	15

Lowest Training Needs	No. of Users "No"
1. Use of Styles: Budgeting/Projecting	21
2. Use of Styles: Cost/Sales Analysis	19
3. Use of Styles: Personnel Records	19

Table 15
Training Needs—Spreadsheet
(Creation of Styles, Templates, Macros) N=61

Highest Training Needs	No. of Users "Yes"
1. Creation of Styles: Personal Records	15
2. Creation of Macros: Accounting Statement	15
3. Creation of Macros: Unit Performance Comparison	15

Lowest Training Needs	No. of Users "No"
1. Creation of Styles: Budgeting/Projecting	19
2. Creation of Styles: Cost/Sales Analysis	17
3. Creation of Styles: Personnel Records	17

Table 16
Training Needs–Database N=41

Highest Training Needs	No. of Users "Yes"
1. Use of Command Language: Macros	21
2. Database Management: Creating Relational Links	19
3. Database Management: Use Queries	19
4. Use of Command Language: Input Forms	19

Lowest Training Needs	No. of Users "No"
1. Data Management: Sorting/Indexing	18
2. Data Management: Data Updating	17
3. Data Management: Analysis/Data Transformation	16
4. Data Creation: Personnel	16

Table 17
Training Needs—Presentation Graphics N=46

Highest Training Needs	No. of Users "Yes"
1. Presentation Creation: Create/Draw Graphics	21
2. Presentation Creation: Incorporate Existing Clip Art	19
3. Document Printing: Displaying Computerized Slide Show	19
4. Document Printing: Copy of' Slides	18
Lowest Training Needs	**No. of Users "No"**
1. Presentation Creation: Formal Reports/ Presentations	21
2. Presentation Creation: Incorporate Existing Clip Art	20
3. Document Printing: Print Paper of Copy of Slides	20
4. Presentation Creation: Short Text-only Presentations	20

Table 18
Training Needs—Email N=63

Highest Training Needs	No. of Users "Yes"
1. Document Creation: Internal Messages	9
2. Document Transmission-Internal: Formatted Enclosures/Attachments	9
3. Document Creation: Internal Letters/Memo/ Short Reports	7
Lowest Training Needs	**No. of Users "No"**
1. Document Creation: Internal Messages	49
2. Document Transmission-Internal: Plain Text Messages	43
3. Document Creation: Internal Letters/Memo/ Short Reports	42

This report of training needs can be a reference for business educators when they develop curricula for employed computer users seeking skill up-grading.

Conclusions and Recommendations

The conclusions from A survey of Twin Cities area computer users will be presented by each of the major software groupings word processing, spreadsheets, data bases, presentations graphics, and e-mail. After this summary, conclusions will be drawn for teaching.

Word Processing

Within the context of the most frequently used software application, word processing, the documents most frequently handled—including the complete cycle of creating, formatting, and printing—are letters, memos and short reports. These are also the areas in which employed computer users are least likely to need training. The types of documents least likely to be part of a word processing assignment are external newsletters, announcements, and advertising. These are documents that may be more likely to require using more sophisticated printing processes—desktop publishing or commercial printing.

Use and creation of macros is the least frequent word processing task, but also the area selected the most for training. Styles are used and created somewhat more frequently than macros, and they do not need additional training. Templates for letters, memos, reports, and forms are created somewhat less frequently than styles, but they, like macros, are an area needing training.

Spreadsheets

Spreadsheets are not used as frequently as word processing; but, as other studies have reported (Arney, 1998), word processing and spreadsheets are used more frequently than other applications (except e-mail). When spreadsheets are used, the printing of reports, graphing of data, and transfer of information into a word processing document are more frequently performed tasks than initial spreadsheet creation. Printing, graphics, data transfer, and making logical comparisons within a spreadsheet were also the areas mentioned most as needing training. The computer users in this study were more likely to create personnel records than other types of spreadsheets, such as financial records. Financial records were also not mentioned as areas of training need. This seems to indicate that persons who use word processing intensively are not the same persons in an organization who use the financial aspects of spreadsheets very frequently. These computer users also make little use of advanced spreadsheet features like pivot tables or advanced statistical operations.

Further, for this group of computer users, styles, templates, and macros were all seldom used. Respondents were as likely to say that they do not need training in these areas as to need it, though macro use and creation of macros were consistently ranked as areas of training needs.

Databases

Fewer respondents used databases than used spreadsheets. When databases were used, the updating and management of data was more frequent than data base creation or report generation. Training needs again focused on the use of macros, command languages, and the more advanced features of creating relational links, using queries, and creating input forms. As was true in the word processing area, training was not needed in the areas of most frequent use.

Presentation Graphics

About the same number of respondents used business presentation graphics as used data bases. As was also true for databases and spreadsheets, and in contrast to word processing, presentation graphics are used less than once a month on the average. Unlike databases and spreadsheets, however, these computer users were likely to create presentations that included clipart and other graphic features for both short text-only reports and formal presentations. While the creation of short text-only or formal report processes did not require additional training, the use of clipart and other graphic creation tools was a training need. There was also some training interest in computerized slide shows and the creation of slide copies.

Electronic Mail

E-mail was the software application that was used as frequently as word processing. The creation and receipt of plain text messages sent internally were the most frequent uses, and they need little training. External uses of e-mail were less frequent, as was the use of e-mail attachments. Even these activities needed little additional training, though attachments and enclosures were not as soundly identified as not needing training as the other e-mail operations.

Conclusions

This study has confirmed the importance of fairly standard word processing office uses and the relatively less frequent use of spreadsheets, databases, and presentations graphics. This study has also shown that e-mail is comparable to word processing in its frequency of use. Unlike word processing, however, e-mail is less likely to require formal instruction—it has and probably can be learned as it is used. This would imply that students should learn e-mail by using it to communicate, it does not need separate instruction in order for this skill to transfer to employment settings.

This sample of employed "computer users" was interpreted by the Personnel Managers who received the questionnaire to be largely secretarial and support staff—also primary creators and users of written communication. If business educators are to learn more about spreadsheet and database uses, and also presentation graphics, it may be necessary to identify persons with job titles that are more specific to business functions making use of these tools. Such persons may be in the financial area of the business for spreadsheets, persons in human resources or sales and marketing for database use, and persons in sales and marketing or corporate training for business presentation graphics to be prominent. In other words, specific software is likely to be used more or less intensively and to exploit different software features depending on specific business needs or purposes.

This dispersal of various types of software use across different job titles has teaching implications. Likely, this would argue for school programs that integrate the teaching of business applications software within several business courses in which the business purposes for using software are made clear. Unless the software is integrated with business subject-matter instruction, it may not be possible to make good use of advanced software features. For example, Office Technology programs are most likely to give prominence to complex documents and the use of advanced word processing features; Accounting and Finance are more likely to make use of advanced spreadsheet features, and Marketing may be able to make more intensive use of presentations graphics. Corporate databases are likely to be prominent parts of either Marketing or Human Resource Development/Personnel. Even greater database specialization is likely to be part of Computer Information Systems areas where mainframe databases are the object of attention and not just desktop systems.

In order to complement the survey data and gain a fuller understanding of the software uses, several of the survey respondents were visited at their work sites. Respondents could indicate on the questionnaire whether such visits would be welcome. This made it possible to actually examine the documents that respondents were using. Indeed, it was possible to see that quite complex documents were being created using particular packages. Persons using databases, in this case, Access, were dependent upon other corporate staff to develop programs to support several human resources applications. Large Excel spreadsheets were being used to maintain complex inventories of books and magazines. Sophisticated PowerPoint applications were being used to create training materials, very close to desktop publishing in appearance. Word processing applications were also complex multi-section documents (using Word).

Some computer users were able to share printed copies and/or disk copies of their work that could be taken to the classroom. Such examples are particularly useful to illustrating realistic applications and allowing advanced project work for students. Most of all, these corporate visits reinforced the need for business educators to combine general quantitative survey data showing overall frequencies of use with site visits that allow—even to a small extent—an appreciation of the complexity of office situations and the applications people create to meet these needs. Once "the basics" are familiar to students, the examples collected from such office visits can be presented as realistic projects. Such applications are an important part of preparing students for employment expectations because they integrate software features with examples of genuine business purposes. While these projects will not fully replace the experience of "being there" in a business setting, they have the potential of reinforcing and extending software concepts in ways that may permit great transfer to business employment—the main point for engaging in any of these activities.

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Longitudinal Comparison of Employment and Aspirations of Business Graduates

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Abstract

The purpose of this study was to make a longitudinal comparison of employment and aspirations of business graduates of Southwestern Oklahoma State University. Accounting graduates tended to receive their first employment in the area of their major in greater percentages than other graduates. Later in their career path, many Accounting graduates moved into management. Business Education majors and minors tended to receive their first employment in education. Business Education graduates tended to continue in the same employment field for longer periods of time than other majors. Management majors acquired their first employment in management in ever decreasing percentages by grouped years. For graduates before 1970, future aspirations were lower than other graduates because of downsizing and anticipated retirements. Most graduates after 1970 were relatively optimistic when rating present and future employment aspirations. Recent graduates (1990s) in some areas were not pleased with the work environment based on current aspirations. Notable in the comparison of aspirations by department was the low aspirations now of recent graduates of the Business Administration Department with greater aspirations for the future.

Introduction

Business graduates of Southwestern Oklahoma State University have been relatively successful in gaining and maintaining employment. These School of Business graduates have seen increased changes in the strategies necessary for gaining initial employment and maintaining continued employment. Which attributes will aid graduates in fulfilling employment opportunities and accomplishing the level of aspirations graduates want to achieve?

Review of Literature

A university should play a major role in the systematic process of developing helpful contacts, linking graduates for assistance and support, and helping these graduates find needed resources, information, employment leads, opportunities, and feedback. To construct a successful network may become the university's objective, along with producing a product that is capable of highly professional job performance. Gardner and Lambert (1992) suggest that universities provide a comfortable nurturing atmosphere leaving the graduate unprepared for employment market realities. Perhaps the greater strength of networking is in mutual support, not paybacks (Gillis, 1980).

An informal organization consists of networks of relationships that were formed by employees across functions and divisions to accomplish tasks quickly (Krackhardt and Hanson 1993). In the 1990s, it was common for executives to have four or more employment changes in their careers. Networking relationships and input of information into a computerized contact management system can be the most important aspect of career management (Olson 1993). Those who work at home must try harder to establish an outside network, both for business reasons and for their own psychological health (Smith 1993).

Herbert and Hosler (1997) followed-up office systems graduates over a period of 18 years. The study indicated that employment was changing primarily because of the impact of technology. A survey of business school graduates found that those with greater mentoring relationships had more promotions, higher income, and satisfaction than those with less extensive mentoring relationships (Dreher and Ash 1990). Whitely, Dougherty, and Dreher (1991) reported mentoring to be significantly related to compensation and promotions. Averett and Burton (1996) reported that the college wage premium was more likely to influence males than females. Jones and Jackson (1990) found that grade point average had a significant positive relationship on earnings for both males and females. This study identified grade point average as a positive relationship for both the first employment and employment five years later.

Purpose

The purpose of this study was to make a longitudinal comparison of employment and aspirations of business graduates of Southwestern Oklahoma State University. The longitudinal comparisons included Program Review employment data by major for historical comparative analysis.

Population and Respondents

The population consisted of School of Business graduates from 1954-1993. A list of 711 business graduate addresses was collected from the University Foundation and Alumni Associations. The total number of respondents from this group was 234 (40.6 percent).

An additional 1802 names were identified from an alumni directory developed for the University by an outside consulting firm in late 1993. Nine individuals were eliminated from this list because they reported not being business graduates, while undeliverable questionnaires indicated 563 incorrect addresses. Of the remaining 1229 graduates, 314 (25.5 percent) returned questionnaires. A total of 548 (30.3 percent) usable questionnaires were returned. Majors were indicated for 527 respondents. Accounting and Finance respondents including majors in Accounting and Finance totaled 191. Administrative Systems respondents including majors in Business Education, Information Processing and Office Administration majors totaled 97. Business Administration respondents including majors in Marketing, Management, Economics, Business Administration and General Business totaled 239.

Methodology

A questionnaire was developed that included a series of statements to be ranked on a Likert-type scale. Prospective respondents were to indicate their responses about the importance of current and future aspirations variables. Information was also requested on initial employment, current employment, and a series of selected demographic data.

All of the data was subjected to statistical analysis. However, Chi-square analysis indicated that there were too many cells of less than five in each comparison group. This statistical analysis was not viable. Employment, major, minor, department, and grouped year comparisons were tested using these demographic variables to determine differences between initial employment and current employment. Percentages were reported in this paper only if the data indicated at least **twenty** percent or higher of the computed data were reported in this study. This reporting procedure was followed for each of the variables.

The initial questionnaire was subjected to a pilot test of 22 School of Business alumni. Revisions were made on the basis of the comments acquired from this pilot group.

Findings

First Employment By Major

This analysis examined graduates' first employment by major and was controlled by grouped years. The data for first employment by major are presented in Table 1.

Accounting/Tax
The data indicated that 28.6 percent of the Accounting majors employed whom graduated before 1970, acquired their first employment in accounting/tax. For the years of 1970-1979, the percentage of Accounting majors' first employment in accounting/tax nearly doubled to 55.6 percent. In 1980-1989, the percentage was 82 percent. This percentage fell to 61.8 percent for the graduates of 1990-1993. Twenty percent of Office Administration majors in 1970-1979 acquired their first employment in accounting/tax and of the graduates for the period of 1980-1989, 50 percent of Economics majors acquired their first employment in accounting/tax.

Management
There were no respondents with majors in Management (Management emphasis in Business Administration) before 1970. However, 28.6 percent of Accounting majors graduating before 1970 acquired their first employment in management. For graduates of the period of 1970-1979, 60 percent of Management majors acquired their first employment in management while during the same period all Finance majors acquired their first employment in management. For graduates in the same period, 32.4 percent of Business Administration majors were employed in management, as were 50 percent of Economics majors.

For graduates of 1980-1989, the percentage of Management majors acquiring their first employment in management declined to 27.3 percent. During this time period, the number of Marketing majors who acquired their first employment in management was 63.6 percent. For graduates of the same period, 50 percent of the Information Processing majors acquired their first employment in management. For graduates of 1990-1993, who receiving their first employment in management, the percentage was the highest for Business Administration majors at 44.4 percent. During the same period, Office Administration majors were at 40 percent; while Finance and Management majors were tied at 33.3 percent among those that acquired their first employment in the management field.

Marketing
For Marketing majors (emphasis Marketing) before 1970, 100 percent acquired their first employment in the marketing field. During this same period, 33.3 percent of the Economics majors acquired a first employment in the marketing field. For the years 1970-1979, 66.7 percent of Marketing majors and 20 percent of Management majors acquired their first employment in marketing. During the periods of 1980-1989 and 1990-1993, 50 percent of Economics majors acquired their first employment in the marketing field. During the period of 1990-1993, 60 percent of Marketing majors, 23.5 percent of Business Education majors, 22.2 percent of Finance majors, and 20 percent of Management majors acquired their first employment in the marketing field.

Banking
For the period of 1980-1989, 21.4 percent of Finance majors and 50 percent of Office Administration majors acquired their first employment in banking.

Administrative Systems
For graduates of 1970-1979, 60 percent of Office Administration majors acquired their first employment in the administra-

tive systems field. This percentage was the same for Office Administration majors for the period of 1990-1993, while for 1980-1989 graduates the percentage was 50 percent. One hundred percent of Information Processing majors acquired their first employment in administrative systems for the period 1990-1993. Fifty percent of Information Processing majors graduating before 1970 and from 1980-1989 acquired their first employment in computer related fields.

Finance

Twenty percent of Office Administration majors graduating in the period of 1970-1979 acquired their first employment in finance. For graduates of 1990-1993, 22.2 percent of the Finance majors and 50 percent of the Economics majors acquired their first employment in finance.

Insurance

For graduates before 1970, 31.3 percent of Business Administration majors acquired their first employment in insurance.

Business Education

For graduates before 1970, 100 percent of Business Education majors acquired their first employment in education. Since that time, Business Education majors that acquired a first employment in the education field has declined. For graduates of 1970-1979, 1980-1989 and 1990-1993 the percents were 62.5, 48.4 and 35.3 respectively.

Legal

For graduates of 1970-1979, 33.3 percent of Marketing majors acquired their first employment in the legal field.

Other

Of those who graduated before 1970, 25 percent of Business Administration majors and 50 percent of Information Processing majors have pursued other employment (non-business) areas for their first employment. For graduates of 1970-1979, 50 percent of Economics majors and 27.3 percent of Management majors among graduates of 1980-1989 secured employment in other areas (non-business).

Present Occupation By Major

The data for graduates and their present occupation by major, controlled by grouped years are presented in Table 2.

Accounting/Tax

For Management majors graduating before 1970, 100 percent were currently employed in the accounting/tax field. For graduates of 1970-1979, 33.3 percent of Accounting majors were employed in the accounting/tax field. For the 1980-1989 graduates, 59 percent of Accounting majors, 21.4 percent of Finance majors, and 50 percent of Information Processing majors were currently employed in the accounting/tax field. For graduates of 1990-1993, 54 percent of Accounting majors were employed in the accounting/tax field.

Management

Graduates before 1970 that were presently employed in the Management field included 42.9 percent of Accounting majors, 31.3 percent of Business Administration majors, and 50 percent of Information Processing majors. For 1970-1979 graduates, 31.3 percent of Accounting majors, 35.1 percent of Business Administration majors, 100 percent of Finance majors, 50 percent of Management and Economics majors, 33.3 percent of Marketing majors, and 20 percent of Office Administration majors were presently employed in the management field. For 1980-1989 graduates, 36.9 percent of Accounting majors, 50 percent of Information Processing majors, 25 percent of Office Administration majors, and 50 percent of Economics majors were presently employed in the management field. For 1990-1993 graduates, 44.4 percent of Business Administration majors, 33.3 percent of Finance majors, 40 percent of Management majors, and 20 percent for both Marketing and Office Administration majors were presently employed in the management field.

Marketing

The 1980-1989 graduates presently employed in the marketing field included, 31.8 percent of Management majors and 27.3 percent of Marketing majors. For 1990-1993 graduates, 26.7 percent of Marketing majors and 50 percent of Economics majors were presently employed in the marketing field.

Banking

For 1980-1989 graduates, 35.7 percent of those who majored in Information Processing and 25 percent who majored in Office Administration were presently employed in the banking field.

Administrative Systems

The Office Administration majors presently employed in the administrative systems field has increased over the years. For the graduates of 1970-1979, 20 percent, for the graduates of 1980-1989, 50 percent; and for the graduates of 1990-1993, 60 percent were employed in the administrative systems field. Also for graduates of 1990-1993, 100 percent of Information Processing majors were presently employed in the administrative systems field.

Finance

For Finance graduates of 1980-1989, there were 21.4 percent that were currently employed in the finance field. During this period, there were also 50 percent of Economics majors that were presently working in the finance field. For graduates of 1990-1993, 22.2 percent of Finance majors were currently employed in finance, as were 50 percent of Economics majors.

Insurance

There were 20 percent of Marketing majors among graduates for the period of 1990-1993 that were presently employed in the insurance field.

Business Education

Of the graduates before 1970, 38.5 percent of Business Education majors were presently employed in the education field. For

Business Education graduates of 1970-1979, the percentage increased to 43.8 percent and for Business Education graduates of 1980-1989, the percentage further increased to 61.3 percent. For Business Education graduates of 1990-1993, 47.1 percent were currently working in the education field. There were 27.3 percent of Marketing majors for 1980-1989 that were presently employed in the education field.

Legal
For the graduates of the period 1970-1979, there were 33.3 percent of Management majors and 50 percent of Economics majors that were presently employed in the legal field.

Small Business
Respondents that were currently employed/owned a small business who graduated before 1970 included 25 percent of Business Administrative majors and 100 percent of Management majors.

Other
There are several majors that were currently employed in other areas (non-business). Of those graduating before 1970, 28.6 percent of Accounting majors, 25 percent of Business Administration majors, 50 percent of Information Processing majors, and 50 percent of Management majors were employed in other areas. For graduates of 1980-1989, 27.3 percent of Management majors and for graduates of 1990-1993, and 25.9 percent of Business Administration majors and 20 percent of Office Administration majors were employed in other areas.

Aspirations By Major

Table 3 presents the data for mean aspirations now given by respondents and mean aspirations for the future given by respondents by major controlled by grouped years. For the majors of Accounting, Business Administration, Business Education, Finance, and Information Processing, aspirations for the future were all higher after 1970 (for graduates of 1970-1993). There was a notable difference between means of aspirations now and means of aspirations for the future for Business Administration, Finance, and Information Processing for the graduates of 1990-1993. Future aspirations were all higher for these groups. Responses of graduates before 1970 for aspirations for the future for many majors were lower with downsizing and anticipated retirements.

Marketing, Management, and Economics graduates before 1970 were equal on current and future aspirations, however, future aspirations for these majors increased over the years. Except for graduates of 1970-1979, Economics majors aspirations were somewhat higher. Office Administration majors had higher future aspirations throughout the years.

Findings For First Employment By Department And Major By Year

Table 4 presents the data for first employment of graduates by major for a specific department controlled by year and the employment field of the first employment acquired.

Accounting and Finance Department
For Accounting/Finance Department graduates before 1970, 28.6 percent of the respondents acquired their first employment in each of the accounting/tax and management occupations. During the period of 1970-1979, 54.3 percent acquired their first employment in accounting/tax and for graduates of 1990-1993, 54 percent acquired their first employment in accounting/tax.

Business Administration Department
For Business Administration Department graduates before 1970, 24 percent acquired first employment in insurance and 20 percent acquired their first employment in a non-business area. For graduates of 1970-1979, 35.8 percent acquired their first employment in management, for graduates of 1980-1989, 30.7 percent acquired their first employment in management, and for graduates of 1990-1993, 31.3 percent acquired their first employment in management. For graduates of 1990-1993, 27.9 percent acquired their first employment in marketing.

Administrative Systems Department
For Administrative Systems Department graduates before 1970, 86.7 percent acquired their first employment in education. For graduates of 1970-1979, 28.6 percent acquired their first employment in administrative systems and 47.6 percent acquired their first employment in education. For graduates of the period 1980-1989, 21.6 percent acquired their first employment in administrative systems and 40.5 percent in the education field. For graduates of 1990-1993, 34.8 percent acquired their first employment in administrative systems and 26.1 percent in education.

Finding For Present Occupation By Department And Major By Year

Table 5 presents the data for present occupation of graduates by major for a specific department controlled by year and the employment field of the present employment.

Accounting and Finance Department
For Accounting/Finance Department graduates before 1970, 42.9 percent were presently employed in management and 28.6 percent in some other non-business field. For graduates of 1980-1989, 32.6 percent each were employed in accounting/tax and management. For graduates of 1980-1989, 52 percent were presently employed in the accounting/tax field while 47.6 percent of graduates of 1990-1993 were employed in this occupation.

Business Administration Department

For the Business Administration Department graduates before 1970, 24 percent were presently employed in each of the management field and small business occupations. Graduates presently employed in the management field included, 39.6 percent of the graduates of 1970-1979, 30.7 percent from graduates of 1980-1989, and 34.4 percent from graduates of 1990-1993.

Administrative Systems Department

For the Administrative Systems Department graduates of 1990-1993, 26.1 percent were presently employed in the administrative systems field. Those presently employed in education of graduates before 1970, was 33.3 percent. For graduates of 1970-1979, 42.9 percent were employed in education. For graduates of 1980-1989, 51.4 percent were employed in education, and for graduates of 1990-1993, 34.8 percent were employed in education.

Aspirations For The Present And For The Future By Department

Graduates of the Accounting and Finance Department, the Business Administration Department, and the Administrative Systems Department all had lower aspirations for the future based on responses by graduates before 1970. All departments' graduates after 1970 had higher aspirations for the future than for the present. The greatest difference was for graduates of 1990-1993 in the Business Administration Department with very low aspirations now but substantially higher for the future. Table 6 presents mean aspirations presently and mean aspirations in the future by department and grouped years.

Conclusions

Accounting majors tended to receive their first employment in the area of their major in greater percentages than other majors do. Later in their career path, many Accounting majors moved into management. For some accountants, the career path was to self-employment.

Finance majors acquired their first employment in a variety of business categories with over 20 percent starting and remaining in finance. Banking was an important category for Finance and Economics majors.

Business Education majors and minors tended to receive their first employment in education. Business Education graduates tended to continue in the same employment field for longer periods of time than other majors.

Management majors acquired their first employment in management in ever decreasing percentages by grouped years. Management majors who in limited numbers did receive their first employment in management tended to remain in the management field.

Marketing majors who acquired their first employment in marketing did so in somewhat higher percentages than other Business Administration majors. Administrative System Department majors were concentrated in Education with information processing the next most important employment area.

For graduates before 1970, future aspirations were lower than other graduates because of downsizing and anticipated retirements. Most graduates after 1970 were relatively optimistic when rating present and future employment aspirations. Recent graduates (1990s) in some areas were not pleased with the work environment based on current aspirations. Notable in the comparison of aspirations by department was the low aspirations now of recent graduates of the Business Administration Department with greater aspirations for the future.

Accounting tended to be the most important employment field for many minors. However, many graduates before 1970 were employed in education and had an Accounting minor.

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All tables will be available upon request from Dr. Nowka and Dr. Buddy at their presentation at the National Conference.

A Model For Assessing the Impact of Microcomputer Use on Freshman Academic and Social Development

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Abstract

As educational computer use increases, the need to change microcomputer-related research in education increases also. The purpose of this study is to determine the relationship between dimensions of first-year students' use of microcomputers and their academic and social development in the university environment. For the study, data from 400 freshmen entering Utah State University (USU) in the fall of 1996 were compared to data collected from the same students during Spring Quarter of 1997. Regression analyses determined frequency of use is most related to freshman social development and breadth of use is most related to academic development.

Problem Statement

Introduction

Studies conducted over the past 15 years have largely focused on defining and describing variables that affect adoption of computer technology or computer literacy (Boettner, 1991; Demetrulias, 1985; Dologite, Ryan, & Ferns, 1990-91; Duncan, 1990; Gabriel, 1985a, 1985b; Geissler & Horridge, 1993; Kagan & Pietron, 1987; Khan & Jessup, 1991; Loyd & Gressard, 1984, Marcoulides & Xiang-Bo, 1990, Martinez & Mead, 1988, Von Holzen, 1993). However, research now needs to focus on the effect of microcomputer technology upon educational goals and values (Kay, 1989, 1992, 1993, 1993-94). Kay (1992) observed that "ultimately educators will have to focus not on how to use computers, but on how to apply computers to educational goals" (p. 446).

As this approach is adopted four changes in computer-related research in education are needed. The first change needed is research into how the use of microcomputers correlates with factors known to promote student learning and student development (see Ehrmann, 1995). Second, researchers need to focus on microcomputer use as a measurable behavior, rather than focusing on the changing concept of computer literacy. A shift to behavioral measures facilitates the third necessary change—application of a theoretically-based methodology for investigation. The fourth change that is needed is in the scope of the research. Most assessments of microcomputer use in education have looked at microcomputer use within a single course (Boettner, 1991; Dologite et al., 1990-91; Duncan, 1990, Hilton, LaBonty, Bartholome, & Stocker, 1993, Kagan & Pietron, 1987; Khan & Jessup, 1991; Lee, Pliskin, & Kahn, 1994, Szajana, 1994). Instead, microcomputer use needs to be studied within the context of an environment (Kay, 1992). An extensive review of the literature, however, found no studies linking uses of microcomputers with specific factors representing students' development in an educational environment. Therefore, a study was conducted to investigate the relationship between various dimensions of students' use of microcomputers and student development.

Statement of the Problem

Utah State University's mission statement begins with this commitment: "Students are the focus as they seek intellectual, personal, and cultural development" (USU, 1996). The effectiveness of microcomputer technology as a resource can be assessed against this statement. Use of microcomputer technology in higher education warrants assessment because of its explosive growth over the past decade (Green, 1996; Green & Gilbert, 1995; Snyder & Hoffman, 1995). While students' use of microcomputers at Utah State University (USU) has been studied in the past (see Hilton et al., 1993, Lutz & Hilton, 1990-91; Maxam & Stocker, 1993 Fall; Sanderson, 1992), research describing the relationship between microcomputer use and the dimensions of student development delineated in the mission statement is not available.

Because of the cost of obtaining and supporting microcomputer technology at this and other institutions (Blumenstyk, 1994, Green, 1995) research is needed on how students' use of microcomputers relates to the educational goal of student development (Ehrmann, 1995). The Gartner Group, a respected consultant, calculated that a PC costs more than $13,000 a year when maintenance, training, and time lost by users is included. This splits as 21% hard equipment, 27% in technical support, 9% administration, and 43% in lost cost opportunity (Weighing the case for the network computer, 1997). Currently, the possible benefits of microcomputer use may not be fully realized. Solid research linking microcomputer use to factors that are known and proven to promote student development would provide a knowledge base for maximizing time and money in this era of tight educational budgets.

Purpose

The purpose of the research is to examine how recognized dimensions of students microcomputer use (e.g., computer self-efficacy [Compeau & Higgins, 1995], microcomputer skills [Furst-Bowe, Boger, Franklin, McIntyre, Polansky, & Schlough, 1995-96], and frequency of microcomputer use [Davis, 1989; Thompson, Higgins & Howell, 1991]) relate to factors predictive of student development (e.g., peer interaction, satisfaction, grade point average (GPA), and interaction with faculty) (Astin, 1993; Pascarella & Terenzini, 1980). The model developed for this study, is designed to explore the relationship between students' use of microcomputers and measures of freshman students' social and intellectual development.

Research Objectives and Questions

Objectives for accomplishing the purpose of this study are: (a) to determine the extent of freshmen's use of microcomputers prior to their becoming full-time students participating on the USU campus; (b) to determine for the same group of freshmen what self-reported and objectively measured changes take place in their use of microcomputers while attending USU; (c) to determine the extent of freshmen's intellectual and social development while attending USU; and (d) to determine how their use of microcomputers relates with their social and intellectual development.

The research questions to be answered by this study are as follows:

1. What types of microcomputer activities do entering USU freshmen report being able to perform? How many different activities do freshmen perform on microcomputers?
2. How often do entering USU freshmen use microcomputers? When they use microcomputers, how long does a typical session last?
3. How confident are entering USU freshmen about learning to use new microcomputer software?
4. What changes occur in freshman microcomputer usage?
5. How satisfied are freshman students with their progress on social development?
6. What do key indicators tell us about the intellectual development of freshman students at USU?
7. What relationship exists between microcomputer use and USU entering freshmen's social development?
8. What relationship exists between microcomputer use and USU entering freshmen's intellectual development?

Research Procedures

Various methods were employed to obtain completed questionnaires from the longitudinal sample of USU freshmen. In the fall of 1996, the largest portion(80%)came from attendees of the annual freshman orientation. Completed questionnaires were also obtained in the fall from a random list of freshmen supplied by USU Computer Services. This list came from a database of all freshmen from which those registered for the freshman orientation had been excluded. Freshmen from this list who completed the questionnaire composed 20% of the longitudinal sample. In the spring, lower-division classes (series 100) were surveyed to obtain matches with data from freshmen who returned completed questionnaires in the fall. Spring Quarter data for 65% of the 400 freshmen in the longitudinal sample were obtained in this manner. However, this method of surveying lower division classes was only partially successful. When it became apparent that matching data would be insufficient, a direct appeal via E-mail was made to students who returned surveys in the fall. In this manner, the final 35% of the responses were obtained and the longitudinal sample of 400 freshmen was completed.

Summary of Results

A summary of results is presented in three sections; generalizability analyses, longitudinal analyses, and regression analyses. After this summary, conclusions will be presented within a similar structure.

Summary of Generalizability Analyses

The longitudinal sample was composed of 400 students who were freshmen in the fall of 1996. The various methods employed to obtain completed questionnaires from freshman students were intended to yield a representative sample of first-time, full-time (FTFT) freshmen attending USU. However the longitudinal sample of 400 freshmen students was statistically different ($p < .01$) from the population of FTFT 1996 entering freshmen on a number of critical variables. The longitudinal sample was significantly statistically different in having a lower percentage of males, a higher mean ACT composite score, and a higher mean high school grade point average. There was no statistically significant difference on ethnic diversity nor on residency status. The results of the nonresponse bias check also showed differences considered by the author to be practically significant between three non-respondent groups and the freshmen in the longitudinal sample. It appears that the longitudinal sample better represents the population of freshmen who entered USU in the Fall of 1996 and continued attending the university through Spring Quarter.

Summary of the Longitudinal Study

Three dimensions of microcomputer use (i.e., breadth, depth, and frequency) were investigated, as were changes in these dimension of use which occurred during the freshman year. Breadth was defined as the types of microcomputer skills that freshmen reported having, e.g., basic skills, word processing, spreadsheet skills, database skills, etc., also the number of programs used in a typical computer session. Depth of microcomputer use was equated with computer self-efficacy and operationalized as computer confidence. Frequency was measured in terms of frequency during the year prior to entering USU, and number of hours during a typical week in the academic year (Igbaria,Pavri & Huff,1989). Changes in the dimension of microcomputer use were operationalized as the mean difference between measures of use obtained prior to entering USU and during Spring Quarter.

Breadth of Microcomputer Use (RQ1). When freshmen entering USU in the fall of 1996 they were asked to report what they could do in seven categories of microcomputer use (i.e., basic, word processing, graphics, spread sheet, database, information retrieval, and programming skills). The largest percentage of students reported skills in the categories of basic skills, word processing, and graphics. During a typical microcomputer session, most freshmen (77%) said they used one or two different software packages.

Frequency of Microcomputer Use (RQ2). Reflecting on the final year of high school, a majority of freshmen (55.3%) reported that they used a microcomputer frequently, 38.8% reported occasionally using microcomputers, and 6% not at all. Self-report data indicated that in a typical week while attending USU freshmen spent an approximate average of 2.75 hours per week doing assignments using a computer, about half an hour per week playing computer games, and about an hour and a half per week using a microcomputer to communicate with friends, family, or to make new friends. In total and on the average, freshmen at USU reported using microcomputers 4.75 hours per week.

Depth of Microcomputer Use (RQ3). On the average, 1996 USU freshmen were moderately confident about completing an assignment with new software. They were most confident about completing an assignment when someone could show them how to use the software beforehand or when they had used a similar package previously. They were least confident when the software package was different from any they had used previously.

Changes in Microcomputer Use Over Time (RQ4). The number of skills freshmen reported being able to do increased by an average of 56% at USU. Changes in frequency of microcomputer use among entering freshmen was not statistically different whether the freshmen reported that in the year prior to entering USU they used a computer "not at all," "occasionally," or "frequently". On the average, freshman confidence in using a microcomputer to learn new software increased across all given situations. It increased the most in the situation where freshmen "had seen someone else using it before trying it." Freshman confidence also showed improvement when personal assistance was not available during the learning and when the software to be learned was unfamiliar.

Summary of the Regression Analyses

Two dimensions of freshman development, social development and academic development, and their relationship to microcomputer use were investigated. Social development was operationalized as social integration and measured as USU freshman perceptions of (a) peer-group interactions, (b) interactions with faculty, and (c) institutional concern for student development (Pascarella & Terenzini, 1980, 1991). Academic development was operationalized as academic integration in terms of freshman perceptions of (a) academic and intellectual development, (b) institutional and goal commitments (Pascarella & Terenzini, 1980, 1991). In addition to these two factors, (c) cumulative GPA through Spring Quarter 1997 was added as a measure of academic development.

Freshman Social Development (RQ5). A majority (63.9%) were positive about interactions with faculty, and a large percentage (94.2%) of freshmen responded positively when asked about their interaction with peers. When comparing time involvement in social activities, expectations of freshman students were not met in the areas of talking with teachers outside of class and volunteer work. When the mean difference between importance and satisfaction is interpreted as dissatisfaction, then freshmen reported the greatest dissatisfaction with their progress toward completing goals relating to finding a lifetime partner (.73), developing leadership skills (.66), involvement in student activities (.66), and advising (.53).

Freshman Academic Development (RQ6). A majority (85%) of first-year USU students in the longitudinal sample gave a positive response to items aggregated in the factor labeled academic and intellectual development. An even larger percentage of the same students (95%) gave a positive response to items averaged in the factor institutional commitment. Results from the longitudinal study show that freshmen overestimated the number of hours per week that they would spend studying or doing homework and doing other academic activities. Although expectations were not met, freshmen were generally satisfied with their progress on completing academic goals. This is surprising, because on the average the cumulative GPA of freshmen in the longitudinal sample at the end of spring quarter was .5 below their high school GPA.

Relationship Between Microcomputer Use and Social Development (RQ7). By categorizing computer-related variables according to computer use dimension, i.e., frequency, breadth, or depth, those dimensions which accounted for the most variance and which most often occurred for each independent variable were identified. Two dimensions of social integration, perceptions of faculty interaction and perceptions of institutional concern for student development, were most influenced by the dimension of frequency of microcomputer use. The third dimension of social integration, perceptions of peer-group interaction, was most influenced by computer confidence or depth of use.

Additional analyses led to an understanding of whether the influence of microcomputer use on social integration was positive or negative.

A review of the microcomputer-related variables which had a positive association with the various dimensions of social integration reveals two variables that occurred repeatedly in various models. The first variable was, computer confidence: If I could call someone for help. This variable occurred with positive beta weights in three different models. The other variable which occurred more than once had to do with the frequency of playing computer games. In general, positively-related variables reflect the use of microcomputers for social activities, such as games and communication and the learning of difficult skills, such as database functions and the debugging of a program. A review of the variables which had a negative association with social integration finds none occurring more than once. In general, however, these negatively- related variables reflect more years of experience, more frequent entry into USU computer labs, and generally a higher skill level prior to entering the university.

Relationship Between Microcomputer Use and Intellectual Development (RQ7). Freshman intellectual development, operationalized as academic integration, had two dimensions, academic and intellectual development and institutional and goal commitment, which were most influenced by the number of and types of microcomputer skills that freshmen learned (breadth). Cumulative GPA at the end of Spring Quarter 1997 was also included as a dimension of academic integration and was found to be equally influenced by frequency and breadth of microcomputer use.

Analyses were performed to determine whether the influence of microcomputer use on academic integration was positive or negative.

Breadth of freshman microcomputer learning, that is skill acquisition, in some cases appeared as negatively-related variables. For instance, information retrieval skills such as use of an electronic bulletin board and change in ability to use the Internet during the first year were two variables that occurred more than once and had a negative effect on academic integration. Academic integration was positively influenced by several variables representing the frequency of use: Frequency varialbes that occurred more than once and were positively related to freshman academic integration were use of microcomputers prior to entering the university and ownership of a microcomptuer while attending USU.

Conclusions

Conclusions from Generalizability Analyses

The longitudinal sample does not appear to represent the population of freshmen entering USU in the Fall of 1996. Rather, when compared on available variables, the longitudinal sample seems to better represent those freshman who entered in the fall of 1996 and continued attending the university through Spring Quarter.

Conclusions of the Longitudinal Study

Breadth of Microcomputer Use. Freshmen entering USU are prepared in the basic categories of microcomputer use, i.e., basic skills, word processing, and simple graphics. Also, measurement of breadth showed that a majority of freshmen typically use just one or two different software packages during a typical session at the microcomputer.

Frequency of Microcomputer Use. On the average, freshmen at USU reported using microcomputers about five hours per week. Although their microcomputer use is varied, the largest portion of their time is taken doing assignments. Communicating with friends and family takes the next largest portion of time. Finally, they report that the least amount of time using a microcomputer is taken playing games.

Depth of Microcomputer Use. On the average, freshmen are moderately confident about using a microcomputer. Their confidence increases when someone can show them how to use the software beforehand or when they used a similar package previously. They are least confident when the software package is different from any they used previously.

Changes in Microcomputer Use Over Time. The number of skills freshmen reported being able to do (breadth of use) increases by over 50% during the first academic year at USU. Specific skill categories showing the greatest increases are information retrieval skills and basic skills. The least change occurs in the category of programming skills. Furthermore, this survey provides evidence that microcomputer use is integrated into the freshmen experience at USU: Frequency of microcomputer use among entering freshmen is nearly the same regardless of whether the freshmen reported that in the year prior to entering USU they used a computer "not at all," "occasionally," or "frequently". On the average, freshman confidence in using a microcomputer to learn new software increased across all given situations. These broad increases leave some question as to whether this measure is specific to computers or whether, in this setting, it measures general self-efficacy. This, because it is to be expected that freshmen would feel more confident toward the end of their first year than at the beginning of that year.

Freshman Social Development. A strong majority of freshmen are positive about their interactions with peers and the institution's concern for student development, however about a third of all freshmen are negative about their interactions with faculty. This may be due to the fact that expectations of freshman students are largely unmet in the areas of talking with teachers outside of class. Other areas of dissatisfaction, include progress toward completing goals relating to finding a lifetime partner, developing leadership skills, involvement in student activities, and advising.

Freshman Academic Development. Freshmen are generally satisfied with their progress on completing academic goals. A strong majority of freshman students are positive about their academic and intellectual performance and express commitment to the institution and their personal goals. Freshmen are, however, less involved in academic activities than they anticipated that they would be, and on the average, the cumulative GPA of freshmen in the longitudinal sample at the end of spring quarter is below their high school grade point average.

Conclusions from the Regression Analyses

Social development and microcomputer use. Use of microcomputers for social activities, such as playing games or using E-mail, seems to enhance freshman social development in a university environment. However, the mentor relationship is most important: Social development is most powerfully influenced by microcomputer use when freshmen have someone they can rely upon for help when they face a problem using microcomputers or when they are learning new software.

Intellectual development and microcomputer use. In general, freshman intellectual development at USU appears to be most influenced by microcomputer use when that use is integrated into academic pursuits in general. That is, when freshmen own a microcomputer and use it frequently in their coursework there is a positive effect on their academic development. However, not all uses of microcomputers contribute to intellectual development. It appears that a focus on the use of the Internet during the first year may interfere with freshman academic development.

Importance of the Study

This research is valuable as an institutional evaluation of the educational benefits of technology. It is most valuable to the target institution, USU; however, the methodology and results of this study may be valuable for other institutions. The study can assist educators and administrators with (a) decisions about microcomputer technologies taught in the college classroom, (b) institutional or departmental strategies for enhancing student development through access to information resources, and (c) budget decisions requiring information about the value of Gilbert, 1995). Also, related local evaluations, such as USU s plan for multimedia education, may find the results of the research useful for understanding the relationship between computer use and certain aspects of student development.

Results from this study provide the following information on freshman use of microcomputers which is valuable in an university setting:

1. Recognition of the effect of microcomputer use on student development in comparison to various other input, environmental, and outcome variables, e.g., demographics, self-assessment, time involvement, goal satisfaction, etc.
2. Identification of specific measures of frequency and the specific microcomputer skills that are most closely related to conventional measures of student performance, i.e. cumulative GPA.
3. Identification of specific ways of using microcomputers which are positively related to freshman social and freshman intellectual development. Also, those ways of using microcomputers which are negatively related to freshman social and intellectual development.

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Nonnative United States-Based Business and Technology Students' Perceptions About Representative English-Language Accents

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Abstract

Perceptions about six representative English-language accents were gathered from nonnative United States-based business and technology students enrolled in introductory business-communication courses by using the well-established matched-guise technique. These nonnative English speakers ranked the studied English-language accent guises in this descending order: first, General American English; second, Received Pronunciation (R. P.) (British) English; third, Australian English; fourth, Estuary English; fifth, Indian English; and sixth, Japanese English. Estuary English, the heir-apparent British standard for spoken English, was not perceived very favorably, although it is an indigenous English-language accent. Statistically significant differences were found to be related to native-country and native-region affiliation differences. The studied accents revealed individualistic attribute profile patterns when their component arithmetic means and grand means were compared

Introduction

As the worldwide dominant language of business (Colback & Maconochie, 1989), the English language exists in many different forms (Kameda, 1992). This causes perceptive businesspersons to wonder if some spoken forms called English-language accents might be more effective than others when communicating with customers worldwide. More specifically, perceptive businesspersons want to know which English-language accents might give them a competitive advantage in the marketplace over those who speak other English-language accents (DeShields, Kara, & Kaynak, 1996). To date almost no related research has been conducted in business-related contexts, leaving businesspersons without sufficient guiding literature.

Perceptive businesspersons realize that they might be disadvantaged in the marketplace by knowing little about the facilitating tool of domestic and international business, the English language (Scott, 1996a). As a result, they may use their communication medium, an English-language accent, in a less than totally effective manner. Perceptive businesspersons realize that they would benefit by knowing how both native and nonnative speakers of English rank representative English-language accents, what the relationships between the perceptions of representative English languages and selected demographic factors are, and what the attribute profile patterns of representative English languages are.

Since one recent reporting by Scott, Green, and Rosewarne (1998) focused attention primarily on natives of the United States who were also native English speakers, this reporting focuses attention primarily on nonnatives residing in the United States who are also nonnative English speakers. Nonnative English-speakers' perceptions about representative English-language accents are important since nationwide this group constitutes about 3.2 percent of the United States college and university population, nearly 460,000 students (Davis, 1997), but rises to nearly 70 percent of the student population at such institutions as California State University, Los Angeles (Christopher, 1995).

Based on estimated data provided in the *1997 Britannica Book of the Year*, which is also known as the *1997 Britannica World Data*, there are 228,770,000 mother-tongue or native English speakers in the United States population of 265,283,783 (see Calhoun, 1997, pp. 739, 776, 780), making 86.2 percent of the United States population native English speakers and 13.8 percent nonnative English speakers. The nonnative English-speaking population increased a total of 2.5 percent between 1988 and 1997 when Kameda (1992) reported that 88.7 percent of the United States population was native English speakers. Although nationwide statistics about the number of nonnative English speakers in the workforce are not collected, it is known that in some hotels about 35 percent of the employees are nonnative English speakers (Andrews, 1990). Because during the 1990s about 25 percent of all new workforce entrants are immigrants—

most from countries where English is not the primary language—nonnative English speakers constitute an ever growing and ever more important percentage of the workforce (Andrews, 1990). Worldwide it is estimated that there are four nonnative English speakers for every native English speaker (Weeks, 1996). The nonnative English-speaking population is important any way it is viewed, and its perceptions of English-language accents merit investigation, filling a void in the business and linguistic literatures in the process.

The purposes of this exploratory investigation and related reporting were (a) to identify perceptions of nonnative English-speaking business and technology students based in the United States regarding representative English-language accents and (b) to examine the differences between those perceptions and selected demographic characteristics. The research questions related to nonnative English speakers were the following:

1. What is the rank order of representative English-language accents?
2. Are sex-based affiliation differences related to the perceptions of representative English-language accents?
3. Are ethnic-based affiliation differences related to the perceptions of representative English-language accents?
4. Are country-based affiliation differences related to the perceptions of representative English-language accents?
5. Are region-based affiliation differences related to the perceptions of representative English-language accents?
6. What are the attribute profile patterns of representative English-language accents?

Literature Review

A comprehensive literature review uncovered almost no research about perceptions of English-language accents from a business-related perspective. It revealed a notable void in both the business- and linguistic-related literatures. The search did uncover a recent study by Scott, Green, and Rosewarne (1998) that reported the combined accent-related perceptions from native and nonnative speakers of English enrolled in business-communication courses in the United States. It also uncovered a study by Chiba, Matsuura, and Yamamoto (1995) that included some Japanese international business students in the sample. A study by DeShields et al. (1996) explored, among other things, the impact of the accents of salespeople on purchase decisions.

A body of related linguistic literature was found that provided methodological guidance. Some of that research employed the matched-guise technique and explored selected demographic characteristics. Little of the research involved a range of varieties of one language or native and nonnative English speakers.

Research by Giles (1970; 1971a; 1971b; 1972) investigated perceptions of native speakers about British English accents. Exploring the preferences of French speakers of English, Flaitz (1988) found that they typically preferred the British rather than the American pronunciation model. Such researchers as Al-Kahtany (1995), Chiba et al. (1995), Rubin and Smith (1990), and Seggie (1983) have consistently found that more-prestigious English-language accents are rated more favorably than less-prestigious English-language accents. Research by Rosewarne (1985) in the United Kingdom reported this rank order for representative English-language accents from advanced-level nonnative speakers of English who were students: first, Received Pronunciation English; second, General American English; third and fourth (tie), Australian English and Estuary English; and fifth and sixth (tie), Indian English and Japanese English. When Rosewarne (1990) replicated the study, he reported this rank order for representative English-language accents from teachers of English as a foreign or second language and students: first, Received Pronunciation English; second, General American English; third, Australian English; fourth, Estuary English; fifth, Indian English; and sixth, Japanese English.

The employed matched-guise technique, a well-established linguistic research method, was developed by Lambert, Hodgson, Gardner, and Fillenbaum (1960). It was enhanced when Osgood's (1964) semantic differential scale rating procedure was incorporated. As a result, the use of bi-polar scales for reporting perceptions has become an integral part of the matched-guise technique (Agheyisi & Fishman, 1970). In 1974 Williams argued that scales supplied by researchers constrained respondents' perceptions and were not necessarily fully understood by nonnative speakers of English. Wilson and Bayard (1992) observed that when semantic differential scales were used, female speakers were rated less favorably on personality criteria than male speakers were. Cargile, Giles, Ryan, and Bradac (1994) summarized more than 30 years of matched-guise research by stating that respondents using the matched-guise technique can register definite and consistent attitudes toward those who use specific styles of speaking.

The literature review confirmed that business-related research into perceptions of English-language accents is needed both to help businesspersons use the English language more effectively as a competitive tool in the marketplace and to fill major voids in the literature. Related studies offered methodological guidance, including the use of the well-established matched-guise technique with semantic differential scales and the exploration of selected demographic variables.

Research Methodology

The widely respected matched-guise technique was employed in this study. The matched-guise technique is used to gather comparative information about the accent-related perceptions of respondents by using the studied accents as the only variables. The same culturally neutral announcement was repeatedly recorded in representative English-language accents by one skilled male phonologist. The series of recorded announcements constituted the matched guises in this study. A panel of English speakers validated the recorded accents, and the six studied guises were selected from the large number correctly identified by all validators.

Three indigenous (an accent native to the local culture) English-language accents—General American English, Received Pronunciation English, and Estuary English—one transplanted (an accent transported from where the accent originated to another location) English-language accent—Australian English—one new (a hybrid of imported and local accents with widespread acceptance) English-language accent—Indian English—and one nonnative (a blend of imported and local accents without widespread acceptance) English-language accent—Japanese English—were selected for study purposes. These accents represent the major types of documented accents within the diverse family of world Englishes.

General American English is the standard accent of the United States spoken by natives residing outside of the northeastern and southern regions of the country. Received Pronunciation English is the regionally neutral, prestigious standard British accent popularly known as either the Queen's English or as British Broadcasting Corporation (BBC) English. The vaguer term Oxford English, which refers to the speech of the university rather than to the more localizable city accent, is also used. Estuary English is the increasingly popular British English accent phonetically intermediate between Received Pronunciation English and the regional speech types of London and southeastern England. The Australian English accent reflects the mainstream pronunciation of natives of Australia. The Indian English accent reflects the mainstream pronunciation of educated natives of India. The Japanese English accent reflects the pronunciation of users of the language who have learned their English in Japan.

Advanced-level nonnative English speakers in the United Kingdom provided adjectival descriptions of the speakers of the studied guises that were manipulated to construct the labels for the semantic differential scales. Using labels derived from the responses of nonnative English speakers ensured that other nonnative English speakers should be able to understand the scale labels. Eight of the 14 scales were within the competence, personal integrity, and social attractiveness personality criteria identified by Lambert (1967).

The researchers devised and recorded a practice activity to ensure that respondents would know how to record their accent-related perceptions on semantic differential scales ranging from extremely negative to extremely positive aspects of accent attributes.

So that respondents would not likely realize that the six studied accent guises had been recorded by one man, distracter guises were recorded under the same conditions as for the original guises by two other males whose accents were not being studied. This added more voice variety in the recorded guises, further masking the fact that one skilled male phonologist had recorded six of the eight accent guises. Using one phonologist for all studied accent guises eliminated variables relating to age, voice pitch, speech speed, and emotional reactions to different voice qualities. Using taped guises also eliminated intervening variables associated with physical appearance, paralinguistics, and physical context. The only factor that was different in the six studied accent guises was the spoken English-language accent.

The research materials were pilot tested in two countries by two different members of the research team to ensure that they were free from all observable problems. Both trials uncovered no noticeable problems in the study materials or procedures.

Two universities in the western United States were selected to participate in the study. One is a research university, and one is a teaching university. Both institutions are accredited by the American Assembly of Collegiate Schools of Business. The research was conducted in the introductory business-communication course because business- and technology-related students are required to complete that course as part of their graduation requirements. This ensured as diverse a population of business and technology students as is possible from intact classes. All seven teachers of the introductory business-communication course agreed to participate in the study and received comparable training from the researchers. The training included information about the study and its methodology, copies of the research materials with detailed instructions, a demonstration of the complete data-gathering process, and a related question-and-answer session.

At the first 15-minute data-gathering session, students (a) learned about the opportunity to participate in the research study; (b) signed informed consent forms; (c) provided demographic information about themselves; and (d) completed the practice activity using the prescribed marking procedures. During the second 50-minute data-gathering session, students (a) reviewed the marking procedures; (b) listened to the recorded accent guises; (c) marked their perceptions on the semantic differential scales; and (d) if they were nonnative English speakers, responded to a few questionnaire items.

Respondents marked their perceptions for each of the eight matched guises on 14 semantic differential scales. Each scale had seven positions spanning the continuum between directly opposite attributes associated with each speaker's accent (e.g., extremely boring to extremely interesting). Respondents circled one number on each scale to reflect their perceptions about that attribute of the speaker's accent.

The researchers used the Statistical Package for the Social Sciences (SPSS-X) Open VMS Vax Version 7.1 to calculate needed descriptive and inferential statistics. Arithmetic means, standard deviations, grand means, and rank order were calculated for each studied accent. Multiple ANOVAs with related Student-Newman-Keuls Multiple-Range Tests where appropriate were calculated to assess the differences between perceptions of the studied accents and the demographic variables. Attribute profile patterns for each of the accent guises were created by collating the arithmetic mean scores on each of the 14 semantic differential scales and by summing them to obtain a grand mean. This allowed comparisons of the accents on the various scales as well as overall.

Research Findings

A total of 232 students were enrolled in the introductory business-communication course at the two universities the quarter the data were collected. About 94 percent—218 students—provided usable study data. Of these, about 88 percent—192 students—were native English speakers, and about 12 percent—26 students—were nonnative English speakers. All nonnative English speakers were from Pacific Rim countries, especially Asian ones.

The typical native English speaker was a 20- to 24-year-old Caucasian male majoring in business administration. He was employed part time in the service industry in a position that never required him to communicate with international businesspersons who spoke other than the English language. He was fluent for business purposes in one foreign language, usually Spanish, and had traveled abroad for professional purposes. The typical nonnative English speaker was a 20- to 24-year-old Asian/Pacific Islander female majoring in accounting or business administration. She was not employed, and she seldom communicated with international businesspersons who spoke other than the English language. She was fluent for business purposes in one foreign language besides English, usually Chinese, and had traveled abroad for professional purposes.

Study respondents reported their perceptions of the studied English-language accent guises by circling numbers that reflected their perceptions of speakers on the 14 semantic differential scales. The numbers for each studied English-language accent guise were totaled, and a rank order was determined. Table 1 shows that the nonnative respondents ranked the General American English accent guise in first place followed closely by the Received Pronunciation English accent guise in second place.

Study respondents reported their sex by checking their gender category on their demographic information sheets. No statistically significant sex-based affiliation differences were found to exist between nonnative respondents and the studied representative English-language accents.

Study respondents reported their ethnicity by checking their ethnic category on their demographic information sheets. No statistically significant ethnic-based affiliation differences were found to exist between nonnative respondents and the studied representative English-language accents.

Study respondents reported their native-country affiliation by listing on their demographic information sheets the state within the Union or the foreign country with which they associated themselves. State data were coded as affiliated with the United States. Other data were coded as affiliated with countries outside the United States. Table 2 shows the grand mean data for the studied representative English-language accent guises for native-country affiliation.

Multiple one-way analysis of variance revealed two statistically significant differences for native-country affiliation. Table 3 shows that native respondents rated the Indian English accent guise higher to a statistically significant degree than nonnative respondents did. Table 4 shows that native respondents rated the Australian English accent guise higher to a statistically significant degree than nonnative respondents did.

Study respondents reported their native-region affiliation by listing on their demographic information sheets the state or foreign country with which they associated themselves. State data were coded by region, using the standard United States Bureau of Census regional divisions. Other data were coded as affiliated with regions outside the United States. Table 5 shows the grand mean data for the studied English-language accent guises for native-region affiliation. Natives of the Northeastern United States rated the General American English accent guise but not the Received Pronunciation English accent guise notably higher than natives of the Midwestern and Western United States did. Also, natives of regions outside of the United States rated the General American English accent guises notably higher than they rated the Received Pronunciation English accent guise.

Multiple one-way analysis of variance with Student-Newman-Keuls Multiple-Range Tests revealed two statistically significant differences for native-region affiliation. Tables 6 and 7 show that Western and Midwestern native respondents rated the Indian English accent guise higher to a statistically significant degree than nonnative respondents did. Tables 8 and 9 show that Western native respondents rated the Australian English accent guise higher to a statistically significant degree than nonnative respondents did.

Study respondents reported their perceptions of the studied English-language accents by circling on 14 semantic differential scales numbers that reflected their perceptions of speakers. The arithmetic mean was determined for each scale for each of the studied English-language accents, and the data for each accent were totaled to complete its attribute profile pattern. Table 10 shows that the nonnative respondents perceived each of the studied representative English-language accent guises to have an individualistic attribute profile pattern.

Irrespective of cost 18 out of 26 nonnative respondents, all of whom were nonnative English speakers, preferred to study English in the United States rather than in the United Kingdom, the other major provider of English-language instruction for nonnative speakers. Exactly 18 out of 25 (with 1 nonrespondent) of these nonnative English speakers preferred to sound like a native speaker of the United States. Also, 19 out of 25 (with 1 nonrespondent) of these nonnative English speakers wanted to speak English without a trace of any accent from their mother tongues.

Discussion

The 12 percent nonnative English-speaking rate found in the introductory business-communication course in the sample, while almost four times the national average, matched the rate of nonnative English speakers found at the two universities from which the sample was drawn. The actual number of nonnative English speakers, 26, is modest, although a very large number of respondents from intact classes would be needed to raise the number of nonnative English speakers appreciably. The number of nonnative English speakers in this study is near the lower limit for performing some statistical calculations, and, as a result, the related findings should be conservatively interpreted.

The demographic characteristics of the native and nonnative English speakers were similar in terms of age but not in terms of sex, which was unexpected, or ethnic group, which was expected. The native English speakers tended to major in programs emphasizing broad managerial skills while the nonnative English speakers tended to major in programs emphasizing technical numeracy skills or broad managerial skills. The typical native English speaker worked part time in the service industry while pursuing his education, but the typical nonnative English speaker did not work while pursuing her education, in part because of immigration regulations that restrict the employment options of many international students studying in the United States. While the typical native English speaker was a bilingual speaker of Western languages for business purposes, the typical nonnative English speaker was a trilingual speaker of both Eastern and Western languages for business purposes. Typical native and nonnative English speakers had traveled abroad for professional purposes.

The fact that the nonnative English speakers ranked the indigenous General American English accent guise first followed closely by the indigenous Received Pronunciation English accent guise second is not surprising since most of the respondents preferred to study in the United States. Their ranking reflects their slight personal preference for the more-familiar General American English accent rather than the less-familiar Received Pronunciation English accent. This finding and Scott, Green, and Rosewarne's (1998) related finding suggest that the historic position of Received Pronunciation English as the universally most-understood (Jones, 1950) and most socially acceptable (Wakelin, 1972) English-language accent may be eroding. The nonnative English speakers ranked the transplanted Australian English accent guise a distant third. The Estuary English accent guise, which is the third studied indigenous English-language accent and the heir-apparent British English accent standard (see Rosewarne, 1994; Scott, 1995, 1996b), was ranked fourth. Nonnative English speakers ranked the new Indian English accent guise fifth and the nonnative Japanese English accent guise sixth. These rankings suggest that nonnative English speakers do not regard the indigenous Estuary English accent very favorably—interestingly they rated its closest linguistic relative, the transplanted Australian English accent, somewhat higher—and portend decreasing importance for probable British English varieties in the future.

If other nonnative English speakers perceive the indigenous Estuary English accent as lowly as the studied group did, then British businesspersons, who are increasingly using the Estuary English accent for business purposes (see "Accent on the," 1997; Scott, 1996b), may not be very favorably received in the international marketplace. Their Estuary English accents may alienate businesspersons from other countries and cause them to conduct business with those whose English-language accents are more familiar, more understandable, and more socially acceptable unless the offered British goods or services are clearly more attractive in terms of quality and price than that offered by competitors from other countries. Unfavorable perceptions about and ensuing prejudice against the Estuary English accent and its speakers by those who speak other English-language accents could handicap British businesspersons in the international marketplace.

The rank order of the English-language accents in this study of nonnative English speakers is similar to that in Scott, Green, and Rosewarne's (1998) reporting of native and nonnative English speakers residing in the United States, with the fourth- and fifth-place accent preferences reversed. It is also somewhat similar to that in Rosewarne's (1990) study of African, Asian, European, and Latin American nonnative English speakers residing in the United Kingdom, with the first- and second-place accent preferences reversed. In all of these studies, respondents preferred the English-language accent standard of their current country of residence, perhaps reflecting a degree of acculturation. The similarities in responses in the various studies suggest that a degree of stability in perceptions of English-language accents exists across language, ethnic, cultural, and country groups.

The rank order information may be useful to prospective and practicing businesspersons as they select an English-language accent to facilitate both domestic and international business. It may also be useful to business-communication teachers as they provide prospective and practicing businesspersons with comparative information about English-language accents.

The fact that no statistically significant differences were found between nonnative English speakers' perceptions of English-language accents and the demographic variables of sex and of ethnicity suggests that a degree of stability in perceptions exists that is not profoundly influenced by sex- and ethnic-affiliation factors.

Country-based differences account for two statistically significant differences. Native English-speaking respondents from the United States rated both the Indian English and the Australian English accent guises higher than did nonnative English-speaking respondents from other countries.

Why native English-speaking respondents from the United States would perceive the Indian English accent guise as favorably as they did may be related to their shared characteristic of retroflexion, the retraction of the tongue tip to the back of or slightly behind the teeth ridge when articulating certain sounds (e.g., sometimes t, d, and r depending on the accent). Retroflexion is a relatively uncommon articulation characteristic found in speech in North America, the Indian subcontinent, some areas of Southwestern England, and the northern part of the People's Republic of China where the Beijing dialect of Mandarin Chinese is spoken. Early settlers from Southwestern England brought the retroflex r with them to the New World and set the pronunciation pattern for subsequent immigrants, and the link survives to this day in the descendants of the early Cornish settlers on Martha's Vineyard, which is off the coast of Massachusetts. Since retroflexion is familiar to native General American English speakers through their articulation of r, its presence in Indian English speech through the articulation of t and d results in minimal comprehension problems—perhaps a recognition of a shared speech bond, too—that translates into higher ratings for the Indian English accent guise. Also, native English speakers in the United States, who tend to value fluency in English-language speech, have been exposed to pronunciations of English that have been influenced by European, African, and, more recently because of immigration, Asian languages, including Indian English. Native English speakers from the United States may also perceive India and its Indian English accent more favorably than nonnative English speakers from other countries because of its success as the world's most populous democracy and its achievement in applying free-market economic principles in a less-affluent part of the world. Other uniting factors may be common elements in the judicial, administrative, and higher-education systems of the United States and India dating back to the seventeenth century.

Why nonnative English-speaking respondents from other countries would perceive the Indian English accent as unfavorably as they did may be related to their unfamiliarity with the retroflexion of t and d. This unfamiliarity typically leads to a breakdown in communication that reduces the perceived intelligibility of Indian English speech for nonnative speakers and results in lowered ratings for the Indian English accent guise. Also, nonnative English speakers from other countries tend to value their notions of accuracy in pronunciation, especially of the English-language accent they have studied. If that studied accent were not Indian English, which is likely the case, they would probably perceive retroflexion as undesirable or inappropriate, resulting in lower ratings for the Indian English accent guise.

Why native English-speaking respondents from the United States would perceive the Australian English accent guise as favorably as they did likely reflects the strong linguistic, cultural, and historical linkages between the United States and Australia. The English-language speech of the United States and Australia has followed similar paths of development with a national standard accent emerging over time. Both the United States and Australia also share many unifying cultural beliefs, values, and assumptions that were brought to these former colonies by early British settlers. These common cultural elements contributed to both countries developing similar systems of social organization, including related political and economic systems and institutions. Such similarities tend to increase acceptance of and affinity for each other's way of life, including English-language accents.

Why nonnative English-speaking respondents from other countries would perceive the Australian English accent guise as unfavorably as they did may be related to the fact that Australian English and its closest linguistic relative, Estuary English, have some sound and intonation patterns that differ from those of the two more familiar worldwide standard English-language accents, General American English and Received Pronunciation English. Nonnative English speakers from other countries likely perceive that the differences in Australian English are obstacles to accent mastery unless they choose the Australian English accent model, which is likely not the case. The perceived differences in the Australian English accent are apt to be viewed unfavorably and to result in the Australian English accent guise receiving lower ratings from nonnative English speakers from other countries.

The fact that natives of the Northeastern United States, whose pronunciations share features with the Received Pronunciation English accent, rated the General American English accent guise higher than either natives of the Midwestern or Western United States is of particular interest. Further, natives of the Northeastern United States did not rate the Received Pronunciation English accent guise significantly higher than natives of the Midwestern and Western United States. These facts indicate that the young adult natives of the Northeastern United States who participated in the study do not value those accent features that resemble standard British pronunciation but that also set their speech apart from that of the majority of speakers of the General American English accent. This suggests a desire on the part of natives of the Northeastern United States to move closer toward a more unlocalizable form of the General American English accent.

Region-based differences account for two statistically significant differences. Respondents who are native English speakers from the Western and Midwestern United States rated the Indian English accent guise higher than did respondents who are nonnative English speakers from regions outside of the United States. Also, respondents who are native English speakers from the Western United States rated the Australian English accent guise higher than did respondents who are nonnative English speakers from regions outside of the United States.

Why Western and Midwestern United States native English-speaking respondents would perceive the Indian English accent guise as favorably as they did may be related to their tendency to use more retroflexion in the pronunciation of r sounds than native English speakers from the Southern and Northeastern United States do. Further study is needed to establish if respondents from the Southern and Northeastern United States would respond less favorably to Indian English speech with its retroflexion. Apart from a degree of avoidance of retroflexion in the pronunciation of r, R dropping is characteristic of Southern United States accents (e.g., Alabama, Arkansas, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia, and parts of Florida and Texas) and Northeastern United States accents (e.g., Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, and parts of Connecticut and New York), where typically the r sounds would not be pronounced in such sentences as "Park our car in the Harvard Yard."

Why nonnative English-speaking respondents from regions outside the United States would perceive the Indian English accent guise as unfavorably as they did may relate to the previously discussed lack of familiarity with retroflexion and their perceiving retroflexion as an undesirable or inappropriate aspect of the Indian English accent guise.

Western United States native English-speaking respondents likely perceived the Australian English accent guise more favorably than did nonnative English-speaking respondents from regions outside the United States because, unlike the latter group, the former group shares with Australians the bonding frontier mind set with its faith in their ability to prosper in spite of challenging conditions.

As a result of finding these statistically significant demographic relationships, prospective and practicing businesspersons should realize that (a) the Indian English and the Australian English accents are perceived differently by native English speakers from the United States than by nonnative English speakers from other countries, (b) the Indian English accent is perceived differently by Western and Midwestern native English speakers from the United States than by nonnative English speakers from other countries, and (c) the Australian English accent is perceived differently by Western native English speakers from the United States than by nonnative English speakers from other countries. Applying this information, business-communication teachers might discuss with prospective and practicing businesspersons how the Indian English and Australian English accents are perceived by native and nonnative English speakers with different country and regional affiliations.

The overall attribute profile patterns for the General American English and Received Pronunciation English accent guises are similar. The General American English accent guise was rated higher than the Received Pronunciation English accent guise in terms of interest, attractiveness, friendliness, well-spokenness, English quality, and pleasantness. The Received Pronunciation English accent guise was rated higher than the General American English accent guise in terms of politeness, experience, intelligence, understandability, preciseness, and intonation. Both of these indigenous accents were rated equally in terms of informativeness and competence.

The General American English accent guise received the highest ratings of all of the studied English-language accent guises in terms of interest, attractiveness, friendliness, well-spokenness, English quality, and pleasantness and tied with the Received Pronunciation English accent guise in terms of informativeness and competence. The Received Pronunciation English accent guise received the highest ratings of all of the studied English-language accent guises in terms of politeness, experience, intelligence, understandability, preciseness, and intonation.

The attribute profile pattern for the Australian English accent guise is consistently lower than the attribute profile pattern for the Received Pronunciation English accent guise. Australian English accent guise scores are typically .5 to 1.5 lower than those for the Received Pronunciation English accent guise. The Australian English accent guise is the only studied English-language accent guise that did not have at least one score that was either the highest or the lowest one on any of the 14 attribute scales.

The attribute profile pattern for the Estuary English accent guise is almost always lower than the attribute profile pattern for the Australian English accent guise. The two exceptions are on the informativeness and understandability attribute scales, where the differences are very small. Estuary English accent guise scores are typically .1 to 1.0 lower than those for the Australian English accent guise, although both accent guises tied for scores on the English-quality scale. The Estuary English accent guise tied with the Japanese English accent guise for the lowest rating of all of the studied English-language accent guises in terms of pleasantness.

The attribute profile pattern for the Indian English accent guise is typically lower than the attribute profile pattern for the Estuary English accent guise; when the Indian English accent guise is rated higher than the Estuary English accent guise, it is by small amounts; when the Indian English accent guise is rated lower than the Estuary English accent guise, it is by much larger amounts. The Indian English accent guise received the lowest ratings of all of the studied English-language accent guises in terms of understandability and well-spokenness.

The attribute profile pattern for the Japanese English accent guise is typically lower than the attribute profile pattern for the Indian English accent guise. The two exceptions are on the understandability and well-spokenness attribute scales, where the differences are rather small. The Japanese English accent guise received the lowest ratings of all of the studied English-language accent guises in terms of interest, attractiveness, friendliness, politeness, informativeness, competence, experience, intelligence, preciseness, English quality, and intonation.

The attribute profile patterns suggest that nonnative United States-based business and technology students enrolled in business-communication courses have distinct and differing perceptions about each of the studied English-language accents overall, as well as about their component attributes. This information could help businesspersons select the most effective English-language accents for such business purposes as advertising, public relations, and other promotional activities in which use is made of the human voice.

To influence prospective nonnative English-speaking customers residing in the United States in a positive manner, businesspersons should select either the highly rated General American English or Received Pronunciation English accent. Businesspersons can shape perceptions of consumers through advertisements that use an English-language accent that is highly rated by the targeted group and that has scale attributes that match the desired product image.

For example, United States businesspersons might use the General American English accent to advertise to nonnative English-speaking consumers if they wish to emphasize such characteristics of their goods or services as interestingness, attractiveness, and friendliness. These positive General American English accent attributes can be associated with and imbued into the advertised goods or services in the minds of these prospective buyers by choosing the General American English accent for personal, radio, television, and audio Internet advertisements. Choosing the Received Pronunciation English accent would also be effective if they wish to emphasize such characteristics of their goods and services as intelligence, politeness, experience, and preciseness.

Businesspersons might use a much lower rated accent such as the Estuary English accent in advertisements targeted toward nonnative English-speaking consumers to make the goods or services of competitors appear less interesting, less attractive, and less friendly. These negative Estuary English accent attributes can be associated with and imbued into the goods or services of competitors in the minds of these prospective buyers by choosing the Estuary English accent for personal, radio, television, and some online advertisements.

In order to use accent-preference information effectively, businesspersons much clearly differentiate between personal, radio, television, and audio online advertisements for the domestic and international marketplaces. Businesspersons must realize that a spoken advertisement that is effective in the United States may not be effective in another marketplace because, in part, the targeted audience may perceive the spoken English-language accent somewhat differently than do consumers in the United States.

In Scott, Green, and Rosewarne's (1998) study, the respondents also rated the General American English accent guise higher than the Received Pronunciation English accent guise in terms of interest, attractiveness, and friendliness. The respondents rated the Received Pronunciation English accent guise higher than the General American English accent guise in terms of experience, intelligence, and preciseness, too. In addition, the respondents rated the Australian English and Estuary English accent guises equally in terms of English quality. The respondents rated the Estuary English accent guise the lowest one in terms of pleasantness, too. Further, the respondents also rated the Japanese English accent guise the lowest one in terms of informativeness, competence, experience, intelligence, preciseness, English quality, and intonation.

In Rosewarne's (1990) study the respondents also rated the General American English accent higher than the Received Pronunciation English accent in terms of interest and friendliness.

The number of similarities in findings in several studies conducted with different populations from various countries suggests that a degree of stability in perceptions of English-language attribute profile patterns exists across language, ethnic, cultural, and country groups.

The English-language attribute profile information may be useful to businesspersons who market products, especially advertisers, and to marketing teachers who train them. It may also be useful to business-communication teachers as they provide prospective and practicing businesspersons with comparative information about the perceived attributes of English-language accents.

Irrespective of cost about seven out of ten nonnative English speakers preferred to study English in the United States rather than in the United Kingdom, suggesting that for the majority of respondents, the locally available General American English accent is the truly preferred accent model. Although the research was conducted on different sides of the Atlantic, this finding is a mirror opposite of the finding in Rosewarne's (1990) United Kingdom-based study. These two findings suggest that three out of ten nonnative English speakers may be exposed to an English-language accent model that is not preferred, indicating that a number of nonnative English speakers may be encountering a far from ideal English-language learning environment.

About seven out of ten nonnative English speakers preferred to sound like native English speakers from the United States, suggesting that the majority of learners of the English language in the United States are actually exposed to the dominant English-language accent that they prefer to speak. Those with other preferences do not necessarily fare as well. To reduce the frustrating mismatch between the desired accent and the taught accent, providers of English-as-a-foreign-or-second-language instruction, including many colleges and universities, need to explicitly communicate to prospective students information about the offered English-language accent model. When such information is forthrightly provided and widely available, then prospective students can make informed decisions about which providers can best meet their language-instruction needs in terms of the desired accent. This finding may also help to explain why the minority of English-as-a-foreign-or-second-language students enrolled in business-communication courses, frustrated by the mismatch between the desired and offered forms of English, seem to be indifferent to mastering the details of the American version of the English language for business-communication purposes.

About three fourths of the nonnative English speakers wanted to speak English without a trace of any accent from their mother tongues, a ten percent decrease from the comparable figure in Rosewarne's (1990) study. This notable decrease in a relatively short period of time suggests that there may be growing concern among nonnative English speakers about language and national-identity issues, including possible domination and cultural imperialism by powerful English-speaking countries. On another level this finding also suggests that most nonnative English speakers are motivated to speak English to a high standard, perceiving the English language to be a powerful tool for cross-cultural communication purposes.

Business Education Implications

This reporting focuses attention on the perceptions of United States-based nonnative business and technology students regarding representative English-language accents and yields implications for business educators.

Business educators need to make prospective and practicing businesspersons aware about the perceptions of natives and nonnatives regarding representative English-language accents. Their goal should be to help businesspersons fully utilize the potential of English-language accents in the domestic and international marketplaces.

Business educators should also encourage those whom they influence to speak one of the two worldwide English-language accent standards—General American English or Received Pronunciation English—since both accents are consistently highly rated in studies and since English is the language of both domestic and international business. For almost all nonnative English speakers, this will mean continuing with the accent model they were taught when they learned English. Those who have learned another English-language accent should modify their speech in the direction of one of the two worldwide English-language accent standards. Business educators themselves should serve as good role models for both native and nonnative English speakers by speaking one of the worldwide English-language accent standards well.

Business educators who specialize in business communication need to provide prospective and practicing businesspersons with information about how both native and nonnative English speakers perceive English-language accents and what the related demographic relationships are. Since little relevant business-related literature currently exists, they should work toward filling the voids in the literature, perhaps in consultation with linguisticians. As more is learned about how perceptions of English-language accents are influenced by demographic variables, business-communication specialists should share this information with prospective and practicing businesspersons.

Business educators who specialize in marketing and business communication should work toward filling the voids in the literature about how perceptions of English-language accents influence the accomplishment of business transactions. Applications involving selling and advertising are but two of the many important marketplace uses to be explored, perhaps in consultation with linguisticians. As the related knowledge base grows, business educators should share it with prospective and practicing businesspersons.

Business educators should inform their students about the appropriate cultural perspective to apply when engaging in various instructional activities. Providing this information is especially important for students who are nonnative English speakers since they must know when to set aside their previous cultural programming and operate on the same basis as the mainstream American business subculture. For example, when developing the public-speaking skills of native and nonnative English speakers, business educators should clearly indicate well in advance the English-language accent expectations—ideally speaking either General American English or Received Pronunciation English. Business educators need to be knowledgeable about and tolerant of the differences in these two English-language accents of global importance, as well as the related minor differences in grammar, word usage, and the like. They should realize that some nonnative English speakers may resist efforts to modify their speech habits because of their lack of desire to develop the accent that the teacher chooses as the classroom standard. Business educators should also encourage their colleagues who teach English as a foreign or second language to communicate forthrightly with their students about the English-language accent model that they use for instructional purposes.

Research Recommendations

This exploratory investigation into the English-language perceptions of nonnative English speakers residing in the United States should be repeated periodically since Rosewarne's (1990) replication of his 1985 study suggests that observable differences in English-language accent preferences can be detected within five years in some cases. Data from the most current and earlier studies can then be compared diachronically, yielding needed longitudinal data (Scott, Green, & Rosewarne, 1998). Such data would help business-communication specialists better understand the dynamics of nonnative English speakers' changing perceptions regarding English-language accents used for business-communication purposes. Replications would be useful in both identical and different regions of the United States, keeping in mind the need to have a statistically sound sample size of about 25 to 30 nonnative English speakers from intact classes at a minimum.

A parallel study of nonnative English speakers should be conducted in as similar an environment as is obtainable in another country to assess the stability of perceptions of English-language accents across cultures and countries. Because of the many differences between the culture of the United States and that of any other country, some adjustments may need to be made in the manner in which the study is conducted. Perhaps the United Kingdom of Great Britain and Northern Ireland might be a place to begin this parallel research for a variety of reasons. It is the homeland of one of the two internationally dominant indigenous English-language accents, Received Pronunciation English. It has a business subculture that is similar in many respects to that of the United States. Further, it has a general culture that is similar in a number of respects to that of the United States.

In future studies researchers should try to answer the questions that this and closely related studies have been unable to answer with a reasonable degree of certainty. Among these questions is why nonnative English speakers rate the transplanted Australian English accent somewhat higher than its closest linguistic relative, the indigenous Estuary English accent. Another is if Southern and Northeastern United States native English speakers really perceive Indian English unfavorably because of its retroflexion.

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Table 1
Rank Order of the Studied English-Language Accent Guises

Rank	English-language accent guise	Mean	Standard deviation
1	General American	78.19	13.38
2	Received Pronunciation	75.93	11.00
3	Australian	61.04	13.79
4	Estuary	54.56	13.39
5	Indian	50.26	10.94
6	Japanese	45.00	11.21

Table 2
Grand Means by Native-Country Affiliation and English-Language Accent Guise

	English-language accent guise					
Country affiliation	Indian English	Estuary English	Japanese English	Australian English	Received Pronunciation English	General American English
Native of the United States	59.65	57.07	48.22	70.98	75.42	77.48
Native of another country	51.50	55.22	46.56	62.06	76.11	81.22

Note. All 26 respondents who were not natives of the United States were nonnative English speakers from Pacific Rim countries, especially Asian ones.

Table 3
ANOVA for Native-Country Affiliation Differences for the Indian English Accent Guise

Source	Sum of squares	D. f.	Mean squares	F-Ratio	F probability
Between groups	1089.0277	1	1089.0277	6.9996	.0088**
Within groups	30805.6923	198	155.5843		
Total	31894.7200	199			

Note. **p<.01.

Table 4
ANOVA for Native-Country Affiliation Differences for the Australian English Accent Guise

Source	Sum of squares	D. f.	Mean squares	F-Ratio	F probability
Between groups	1306.2938	1	1306.2938	8.8995	.0032**
Within Groups	29209.8953	199	146.7834		
Total	30516.1891	200			

Note. **p<.01

Table 5
Grand Means by Native-Region Affiliation and English-Language Accent Guise

	English-language accent guise					
Country affiliation	Indian English	Estuary English	Japanese English	Australian English	Received Pronunciation English	General American English
Native of the Northeastern United States	66.33	70.67	42.00	65.00	76.67	84.00
Native of the Midwestern United States	71.40	63.40	55.60	69.80	76.60	71.80
Native of the Southern United States	00.00	00.00	00.00	00.00	00.00	00.00
Native of the Western United States	59.20	56.66	48.12	71.12	75.36	77.53
Native of regions outside of the United States	51.50	55.22	46.56	62.06	76.11	84.22

Note. Northeastern United States = Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont, Midwestern United States = Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin, Southern United States = Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia, Western United States = Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming, and Regions outside of the United States = all other regional locations

There were no Southern United States-affiliated respondents

Table 6

ANOVA for Native-Region Affiliation Differences for the Indian English Accent Guise

Source	Sum of squares	D. f.	Mean squares	F-Ratio	F probability
Between groups	1948.3936	3	649.4645	4.2508	.0062**
Within Groups	29946.3264	196	152.7874		
Total	31894.7200	199			

Note. **p<.01

Table 7

Multiple Range Test for Native-Region Affiliation Differences for the Indian English Accent Guise

		Groups			
Mean	Group	5	4	1	2
51.5000	5				
59.2011	4	*			
66.3333	1				
71.4000	2	*			

Note. Group 1 = Northeastern United States, Group 2 = Midwestern United States, Group 4 = Western United States, Group 5 = All regions outside the United States

There were no Southern United States-affiliated respondents

*p<.05

Table 8

ANOVA for Native-Region Affiliation Differences for the Australian English Accent Guise

Source	Sum of squares	D. f.	Mean squares	F-Ratio	F probability
Between groups	1423.9646	3	474.6549	3.2142	.0240*
Within Groups	29092.2244	197	147.6763		
Total	30516.1891	200			

Note. *p<.05

Table 9

Multiple Range Test for Native-Region Affiliation Differences for the Australian English Accent Guise

		Groups			
Mean	Group	5	1	2	4
62.0556	5				
65.0000	1				
69.8000	2				
71.1200	4	*			

Note. Group 1 = Northeastern United States, Group 2 = Midwestern United States, Group 4 = Western United States, Group 5 = All regions outside the United States

There were no Southern United States-affiliated respondents

*p<.05

Table 10

Attribute Profile Arithmetic Mean and Grand Mean Data for the Studied English-Language Accent Guises

	English-language accent guise					
Attribute scale continuum	Indian English	Estuary English	Japanese English	Australian English	Received Pronunciation English	General American English
Boring/Interesting	4.33	3.30	3.30	4.26	4.70	5.63
Unattractive/Attractive	3.41	3.00	2.96	4.00	4.93	5.56
Unfriendly/Friendly	4.30	3.70	3.63	4.44	5.22	5.89
Impolite/Polite	4.48	4.27	3.89	4.37	5.30	5.11
Uninformative/Informative	4.33	4.56	3.81	4.52	5.52	5.52
Incompetent/Competent	3.85	4.11	3.48	4.41	5.30	5.30
Inexperienced/Experienced	4.44	4.41	3.96	4.82	5.70	5.63
Unintelligent/Intelligent	4.00	4.04	3.74	4.44	5.23	5.19
Difficult to understand/ Easy to understand	2.30	4.48	2.52	4.44	6.11	6.09
Not well-spoken/Well-spoken	2.44	4.11	2.52	4.30	5.89	5.93
Not precise/Precise	2.93	4.04	2.78	4.15	5.56	5.41
Bad English/Good English	2.85	4.41	2.78	4.41	5.82	5.89
Bad intonation/Good intonation	3.30	3.33	2.63	4.33	5.56	5.48
Unpleasant voice/Pleasant voice	3.30	3.11	3.11	4.15	5.30	5.59
Grand mean	50.26	54.56	45.00	61.04	75.93	78.19

Note. 1 = extremely (negative characteristic), 2 = rather (negative characteristic), 3 = somewhat (negative characteristic), 4 = neither (negative characteristic) nor (positive characteristic), 5 = somewhat (positive characteristic), 6 = rather (positive characteristic), and 7 = extremely (positive characteristic).

The total of the 14 attributes for each English-language accent guise may not equal the reported grand mean because of the rounding of the component arithmetic means.

Our Future Business Education Students: Technology and Elementary School Students

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Abstract

This study was conducted to determine how Georgia elementary teachers are incorporating student use of computers in their schools. Of the 250 instruments that were mailed to randomly selected Georgia K-5th grade elementary school teachers, 127 usable instruments were returned for a rate of return of 50.8%. The study found that the majority of teachers had computers in their classroom and also had access to computers in media centers and/or computer labs. Most of the students used the computers for enrichment purposes, remedial work, or as a reward. However in some instances, students were also using the computers to conduct research and make classroom presentations. Elementary students are becoming extremely proficient in computer use, and it is predicted that secondary business education teachers must revise their computer courses in order to meet the challenges these students will bring to the classroom.

Background

As computer use continues to increase in society, educators must also prepare for the use of computers within the classroom. Many secondary schools have already risen to this challenge. However, this preparation should involve all levels of education including elementary school students.

Much of research on elementary school students and computers has been limited to elementary students and keyboarding (Hunter, 1989; Rigby, 1983) or creative writing using computers (Ramondetta, 1992; Willer, 1984) or the attitude of elementary students toward computers (Teague, 1987). However, research has also been conducted with elementary school teachers and computers.

Some of the research has focused on teacher anxiety and computers. According to Shick (1996), limited computer knowledge can also lead to high levels of anxiety for elementary teachers. This anxiety hampers these teachers' computer-related instruction. Other research shows that anxiety associated with computer use in elementary instruction can be reduced through proper training and education for teachers. This training includes teaching elementary teachers how to implement computers in the educational setting by teaching basic computer concepts and providing hands-on computer experiences (Barker, 1994). Additionally, computer training has been used to assist elementary teachers in lesson planning which has helped reduced the amount of anxiety related to computer technologies (McCormack, 1995). Some Texas universities encourage and even require their preservice elementary teachers to purchase laptop computers to reinforce the importance of computers in lesson planning and instruction (Smith, Houston, & Robin, 1995).

It is important that research continue examining computer use of both elementary students and elementary teachers. The elementary students are our future leaders and the elementary teachers are the ones who helped shape them. Technology will play an important role in the future of both groups.

Problem and Purpose

In many Georgia teacher preparation programs, all pre-service teachers, including elementary teachers, must take some type of "introduction to computers" course before either being admitted into the teacher preparation program or before graduation. It is hoped that this course will help them efficiently use computers in the classroom and in turn teach their students how to use the computers effectively. However, there are many current teachers at all grade levels who did not have to take any technology courses during their teacher preparation. How are the students of these teachers using the computers in the classroom?

Elementary teachers were chosen for this study primarily because, until the influx of lottery money became available, computers were scarce in the elementary schools of Georgia. Elementary teachers were not responsible for teaching students how to use computers. Today it is a different and ever changing educational world. Therefore, to ensure elementary school students may later succeed in secondary schools and beyond, students must begin their technology base with computers in the elementary schools. The purpose of this report was to determine how Georgia elementary teachers are incorporating student use of computers in their school.

Research Questions

1. Where are computers available in the elementary schools (classroom, lab, media center)?
2. How do the students use the computers in the elementary schools?

Scope and Method

The survey instrument was designed by the researchers and pilot tested by a group of Georgia teachers. After revisions to the instrument, 250 instruments were mailed out to randomly selected Georgia K-5th grade elementary school teachers. One hundred and twenty-seven usable instruments were returned for a rate of return of 50.8%.

Findings

Respondents

One hundred percent of the respondents were female. The highest percentage of the respondents were veteran teachers with 29% of them having 16-20 years of teaching experience; 11-15 years (23%); and 21-25 years (20%). Sixty-one percent of the respondents teach in suburban schools, and they were evenly distributed among grades kindergarten through fifth.

Computer Availability

Ninety-eight percent of the respondents had computers available for their use in their classrooms. Ninety-eight percent also had access to computers in their media center/library. Seventy-four percent had access to a computer lab within their school.

Computer Use by Students

Classroom. The respondents were asked to indicate all methods used to incorporate student use of computers in the classroom. Eighty-seven percent of the respondents noted that the students used the computers in the classroom for enrichment purposes — students could explore material more in-depth. Seventy-four percent indicated that the computers were used for remedial work — students reviewed previously learned material. Sixty-nine percent indicated that students were rewarded by being allowed to use the computer to play educational games. Almost half of the respondents noted that students used the computers to do research on new topics using the CD ROMs (47%) and to be introduced to new lessons (46%). Twenty-nine percent indicated that students used the computer for classroom presentations; however, only eight percent said students used the computer for research using the Internet/WWW.

Media Center. The respondents were asked to indicate all methods used to incorporate student use of computers in the media center/library. Forty-four percent of the respondents indicated that students used the computers for research using CD ROMs. Thirty-nine percent indicated that students used the computers for enrichment. Thirty-two percent noted that students used the computers as a reward. There were more students doing research using the Internet/WWW (28%) in the media center than in the individual classrooms. Twenty-one percent responded that the computers were utilized to help students make classroom presentations, and 21% also indicated that students used the computers for remedial work. Sixteen percent indicated that students used these computers to be introduced to new lessons.

Computer Lab. The respondents were asked to indicate all methods used to incorporate student use of computers in the computer lab. Students used the computers mainly for remedial (47%) or enrichment (45%) purposes. Thirty-seven percent of the respondents said the students were allowed to use the computers to be introduced to new lessons. Twenty-five percent said the computers were used to assist students with classroom presentations. Twenty-two percent indicated that students used the computers for research using CD ROMS. Only 17% of the respondents said that students used these computers as a reward and even less (10%) said these computers were used for research using the Internet/WWW. Table 1 provides an overview of the computer use in the three settings.

Table 1
*Computer Use by Elementary School Students**

Computer Use	Classroom	Library/ Multimedia Center	Lab
Intro to new Lesson	46%	16%	37%
Remedial	74%	21%	47%
Enrichment	87%	39%	45%
Reward	69%	32%	17%
Research using CD-ROM	47%	44%	22%
Student Classroom Presentation	29%	21%	25%
Research using Internet/WWW	8%	28%	10%

*Columns do not add to 100% - respondents asked to mark all answers that applied

Implications

It was encouraging to find so many teachers with computers available for their students' use, and how many were using the computers to enrich students' learning. This exploration can surely sharpen a young mind and open up a world of possibilities. Though a smaller percentage of respondents had students doing actual research, participation indicated that the teachers were developing their students' critical thinking skills by allowing individual investigation and having their students find specific answers to research questions.

Although only about one-fourth of the respondents were having students use computer-assisted classroom presentations, it is a good start. Presentation skills are a valuable commodity and should be started in the early stages of education. Using the computer to help with these skills will result in easier and more enjoyable presentations for the students.

It was clear, however, that in many cases the computer was mainly used to help individual students maintain classwork (remedial) or to keep them occupied during the time others completed their work (reward). Using computers as high tech flash cards does not seem to optimize their potential in the classroom. More innovative uses for the computer need to be found.

How do these teachers, who have not had the benefit of technology courses in their teacher preparation courses, learn to find more innovative uses for the computer? They must rely on staff development courses. So instead of the traditional courses in word processing, school systems should be offering more courses in integrating the computer into the curriculum. Because business teacher educators are especially adept at keeping up with the changing technology, they would seem to be the ideal choice to direct these staff development courses.

In addition, business education teachers will be meeting a new challenge as these elementary students reach high school. These students are currently researching the Internet and making presentations. It is also likely that they will be proficient in word processing and spreadsheets. Instead, they may be ready to build their own interactive web pages, burn their own CDs, and write Java script applets. So, as always, business education teachers must stay ahead of the technology curve and be ready to meet the technology needs of these future business education students.

Future Research

Future research on the topic of elementary students and technology should examine these same issues on a national scale. In addition, future researchers should compare the similarities and differences of computer use by elementary students who are in classrooms of teachers who have had the benefit of teacher preparation technology courses to those students who are in the classrooms of teachers who have not had that experience.

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Predicting Final Achievement of High School Accounting 1 Students: Problem-Based Versus Objective Exams

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Abstract

Substantial discussion regarding student assessment has taken place in recent years (Curren, 1995; Davis, 1994; McTighe & Ferrara, 1994; Spencer, 1995; Wiggins, 1993). Specific to accounting students, the thrust has been on which method of assessment best measures learner performance: problem-based exams or objective exams (Baker & Simon, 1985; Frakes & Lathen, 1985; Odaiyappa, 1989). The purpose of the study was to determine whether problem-based exams or objective exams better predict the final understanding of accounting concepts by high school Introductory Accounting 1 students and their ability to apply those concepts. Results of the study indicate that only the objective exam scores proved to be an accurate predictor of final student achievement.

Introduction

In recent years, there has been considerable discussion regarding the assessment of student achievement (Curren, 1995; Davis, 1994; McTighe & Ferrara, 1994; Spencer, 1995; Wiggins, 1993). Discussions surrounding what form student assessment should take have been especially prominent in the literature (Wiggins, 1993). As noted by McTighe and Ferrara (1994), teachers can use a variety of assessment methods to diagnose the strengths and needs of students, to plan and revise instruction, and to provide feedback to students and others regarding achievement.

McTighe and Ferrara (1994) reported that the form student assessment should take is contingent upon several factors: (1) learning outcomes, (2) assessment purpose(s), and (3) assessment audience(s). Learning outcome refers to what the students should be able to do as a result of instruction. Assessment purpose regards the manner in which the assessment information will be used. Assessment audience refers to the parties who will use the collected information. Regardless of assessment form, the constant monitoring of student learning is a vital part of effective teaching and learning (McTighe & Ferrara, 1994).

Specific to the appraisal of accounting students, studies have focused on which form of assessment best measures student performance: problem-based exams or objective exams (Baker & Simon, 1985; Frakes & Lathen, 1985; Odaiyappa, 1989). Traditionally, as reported by Frakes and Lathen (1985), the knowledge and skills gained by students in accounting courses have been measured by problem-solving or performance tests. Accounting is unique in that problems are not always approached and worked in the same manner. Students must analyze each situation and make appropriate decisions based on those circumstances (Odaiyappa, 1989). For example, a problem-based exam can be used to measure the students' ability to complete various accounting cycle financial statements. A number of accounting teachers believe that the problem-based approach is the best way to measure problem solving and critical thinking skills (Musselman & Hanna, 1960). Problem-based exams use "questions that demand a free response are generally considered slightly better in terms of reliability, validity, removal of guessing factors, and retention of subject matter being evaluated [than are objective exams]" (Odaiyappa, 1989, p. 204).

For a host of reasons, teachers began using objective, multiple-choice test formats in the 1930s (Hardaway, 1966). Reasons reported for the rise of of multiple-choice testing include increased class sizes and a literature base advocating multiple-choice exams to assess content ranging from the simple to the complex (Gronlund, 1981; Ebel & Frisbie, 1986). By the 1980s, objective exams have become the normal assessment method used in many accounting classes because they offer flexibility in design and content. Objective exams are perceived as being more efficient to administer in larger classes, in terms of preparation costs, class time used for the exam, and grading time (Odaiyappa, 1989). Standardized objective exams can also provide valuable comparisons between and among different accounting classes. Some teachers, however, have argued that multiple choice exams measure student understanding of only simple concepts, while other teachers have reported the effective use of objective exams to measure more difficult levels of learning (Gronlund, 1981).

While there has been some research in the area of student performance assessment comparing problem-based exams and objective exams, all of this research has been conducted at the post secondary or professional levels (e.g., Baker & Simon, 1985; Frakes & Lathen, 1985; Odaiyappa, 1989). Thus, this study builds upon and expands previous student performance assessment research by investigating whether problem-based exams or objective exams are better predictors of final achievement among high school Introductory Accounting I students.

Review of the Literature

A study describing how a problem-solving model could be used in fostering the analytical and conceptual thinking of students in university level principles of accounting courses was undertaken by Deleo and Letourneau (1994). Specifically, the Deleo and Letourneau (1994) study sought to determine whether combining a problem-solving process with course content assisted learners in applying specific accounting concepts. Results of the study indicate that the students exposed to the problem-solving model scored significantly higher on exams than did those students not exposed to the problem-solving model (Deleo & Letourneau, 1994).

As noted by Odaiyappa (1989), both teachers and students expect testing as an integral part of teaching and learning with student grades at the center of the process. Thus, central to Odaiyappa's (1989) study of cost accounting students was the assessment form preferred by students and whether there is a difference in student performance based on exam formats. Results of the study indicated that cost accounting students preferred the problem-solving approach to the multiple-choice format. Interestingly enough, this problem-solving approach preference was true regardless of student performance--high or low. Odaiyappa (1989) concluded that students perceived better performance in the problem-solving approach, thus its popularity among learners. In reference to student performance based on exam format, Odaiyappa (1989) reported that grades achieved by learners were significantly influenced by exam format.

In a study of university level financial accounting students, Frakes and Lathen (1985) sought to determine if a difference existed in the class rank of students based on exam scores. In the study, three exams were administered to the students over a semester. These three exams consisted of two sub-tests assessing the same subject matter. One sub-test was in multiple-choice format, while the other sub-test was a problem-solving format. Results of the study indicated no significant difference in student scores based on exam format--multiple-choice or problem solving. Further, Frakes and Lathen (1985) reported that class ranking using multiple-choice exam scores and problem-solving exam scores were highly associated.

Purpose

The purpose of the current study was to determine whether problem-based exams or objective exams better predict final student understanding of accounting concepts and ability to apply those concepts among high school Introductory Accounting I students. Specifically, answers to the following questions were sought:

1. Does the combination of problem-based exams and objective exams predict final achievement among high school students in Introductory Accounting I?
2. Are problem-based exams a unique predictor of final achievement among high school students in Introductory Accounting I?
3. Are objective exams a unique predictor of final achievement among high school students in Introductory Accounting I?

Method

The next section presents the methodology used during the study. Discussed are the participants, instrumentation, and data analysis.

Participants

Study participants consisted of 64 high school Introductory Accounting I students in five classes, 26 (40.6%) were male and 38 (59.4%) were female. Of these 64 students there were 40 (62.5%) seniors, 22 (34.4%) juniors, and 2 (3.1%) sophomores. These students attended a 55-minute class five days per week throughout the school year.

Instrumentation

As expressed by McTighe and Ferrara (1994), the selection of a specific assessment method should be based on several factors such as the intended learning outcomes of instruction. Thus, an important component of this study was the development of 26 chapter exams into two comparable sub-exams composed of both problem-based and objective questions and one comprehensive objective final exam. In order to assess the impact of examination form on performance, the two forms of sub-exams needed to be of corresponding length and difficulty as well as measure similar learner outcomes. For the purpose of this research, content validity of the sub exams and the final exam was determined by the researchers' shared judgment. After determining the appropriate content for each exam, a set of problems and objective questions were developed separately by the researchers. The problems and objective questions were then pooled to form two sub-exams designed to measure the same student outcomes. The two sub-exams were then completed by each of the researchers to detect flaws in the exams and to assure that the two-sub exams could be completed in a 55-minute class period. Once the final exam content had been determined, an answer key was developed to insure inter-rater reliability between the scorers. These exams, 26 problem-based and 26 objective sub-exams and the final exam were deemed to be of reasonable difficulty by the researchers.

Data Analysis

The independent variables for this study were the number of student absences, student scores on 26 problem-based exams, and student scores on 26 objective exams. The dependent variable was final achievement as measured by an objective final, comprehensive exam. Before beginning the regression analysis, the number of absences and the scores for both the problem-based exams and objective exams were centered by subtracting the mean of each variable from each of the scores in order to minimize nonessential collinearity (Pedhazur, 1997).

Table 1 highlights the means and standard deviations for and correlations among the number of absences and scores on the final exam, objective exams, and problem-based exams. All tests of significance were conducted at alpha = .05. The strongest correlation existed between centered problem-based exam scores and objective exam scores at r = .87, p <.001. There was also a strong relationship between objective exam scores and achievement, r = .78, p <.001. Further, a significant correlation existed between centered problem exam scores and achievement, r = .60, p <.001. These high, positive correlations were not unexpected by the researchers. A negative correlation existed between centered absences and both centered objective exam scores r = -.44, p <.001 and centered problem-based exam scores. Again this condition was not unexpected by the researchers.

A two-step hierarchical regression analysis model was used to show the cumulative effect of adding problem-based exam scores and objective exam scores into the model. Standardized regression coefficients were reported during this process to determine the relative effect of each variable on achievement. To control for the effect of absences, the number of absences was regressed on achievement in the first step of the analysis. On the second step, centered scores for objective exams and problem exams were added to the model. A plot of standardized residuals against the dependent variable, final achievement, confirmed that the data set had a linear relationship and was heteroscadastically scattered around the zero line.

In addition, an analysis of the scatter plot, histogram, frequency distribution, and df betas was used to evaluate the data for any outliers which could have unduly influenced the results. Cook's Leverage values were also examined to ensure normal distribution of the data set (Pedhazur, 1997). No outlier or unusual score was detected during the analysis. Data were also analyzed for the possible moderating effect of absences on both the problem-based exams and objective exams. There was no evidence that the number of absences was acting as a moderator.

Findings

Since the researchers theorized that the number of student absences might have an impact on performance, absences were controlled for in the analysis. Absences accounted for only 4% of the variance in final achievement, which was not significant at F = 2.677, p = .107. To answer research question one, both problem-based exam scores and objective exam scores were added to the second block of the regression analysis. Problem-based exam and objective exam scores accounted for 62% of the variance in final achievement at F54.473, p < .001. To answer questions two and three, tests of the slopes indicated that objective exam scores were a significant unique predictor of final achievement (Objective B = .297, p < .001). Problem-based exam scores were not a significant predictor of final achievement in this study. Results of the regression analysis are presented in Table 2.

Table 1
Means and Standard Deviations for and Correlations Among the Number of Absences and Scores on Final Achievement, Objective Exams, and Problem-Based Exams

	Mean	Std. Deviation	Achievement	Absences	Objective	Problem
Achievement	251.75	30.73	---			
Absences	0.00	8.60	-0.203	---		
Objective	0.00	114.83	.784***	.439***	---	
Problem	0.00	185.46	.666***	-.459***	.872***	---

Note. N=64 and independent variables have been centered.
*Significant at p<.05, *Significant at p<.01, ***Significant at p<.001

Table 2
Multiple Regression Analysis of Objective Exams and Problem-Based Exams as a Predictor of Final Achievement When Controlling for Absences

	Variables	r^2	F	Change in r2	F of change	B	t	Partial Correlation	Semipartial Correlation
Step one	Absences	.041	2.677	.041	2.677	-7.260	-1.64	-2.030	-.203
Step two	Objective	.66	38.747	.618	54.473***	.297	7.19***	.680	.542
	Problem					-.050	-1.93	-.242	-.145

Note. N=64, *Significant at p<.05, **Significant at p<.01, ***Significant at p<.001

Discussion and Implications

As is the case with most studies, caution should be employed when interpreting results of the current study. First, the study is limited by the length of the final exam time--one 55-minute class period. A longer final-exam time would have allowed the researchers to assesses the students' understanding of more course content. Second, comparing an objective final achievement exam score with problem-based scores and objective scores may have skewed the exam scores of some participants. A problem-based final exam component should be included in any future research to help reduce this problem. Third, the small sample of students could influence the study results. Additional research with a larger sample size would be useful in reinforcing the results of this study. Fourth, the only variable controlled for in the analysis was absences. Additional variables such as GPA, gender, and grade level could also be controlled for their possible influence on student performance. On a positive note, the results of this study do establish a base from which future researchers will be able to work when assessing the performance of high school accounting students.

In a related study, Odaiyappa (1989) reported that the grades achieved by learners in cost accounting class were not significantly influenced by exam format. In addition to learner achievement, Odaiyappa (1989) studied student exam preferences. Interestingly students preferred the problem-solving approach to the multiple-choice format for exams. This problem-solving approach preference applied regardless of student performance--high or low--on either exam type. Odaiyappa (1989) suggested that students perceived better performance in the problem-solving approach resulting in its support from the learners. While the results of the current study are inconsistent with those of Odaiyappa's (1989) study, it may be beneficial to consider student preferences when developing assessment devices.

Much attention has been given to the idea of integrating problem-solving into the accounting curriculum. For instance, Deleo and Letourneau (1994) described how problem-solving can be used to foster student understanding of course content. Results of their study indicated that students who were exposed to the problem-solving process scored significantly higher on exams than did those students not exposed to the problem-solving model (Deleo & Letourneau, 1994). Therefore, it may be necessary for accounting teachers to stress the content--knowledge of accounting concepts and principles--in the problem-solving process. Deleo and Letourneau (1994) stated, "Most educators accept that the ultimate goal of education is to provide the student with a body of knowledge that can be applied to solving real-world problems" (1994, p. 264).

Given the above discussion, the following implications for practice are offered. First, since a combination of problem-based exams and objective exams is a predictor of final student achievement in this study, accounting teachers can choose to use a combination of the two exam formats and be confident that final student achievement will not be compromised. Second, accounting teachers may want to consider student preferences when creating exams for the following reasons. One, students in the Odaiyappa (1989) study when given a choice preferred a problem-solving exam over an objective exam regardless of their performance level. Odaiyappa (1989) concluded that students perceived that problem-solving exams provided the instructor a better assessment of their understanding of accounting concepts. Two, students also enjoyed receiving partial credit on problem-solving exams and believed that problem-solving assessments present a more realistic situation than do objective exams (Odaiyappa, 1989). Third, if the purpose of the course is to allow students to apply accounting concepts to the real-world, include an assessment which requires learners to apply content knowledge in solving problems. This integrative practice is supported by the work of Deleo and Letourneau (1994). Lastly, if the goal of the accounting teacher is to predict final achievement scores of the students, include objective questions in the assessment process as the objective exam score proved to be a unique predictor in the current study.

Recommendations for Further Research

Based on the review of the literature and analysis of the data, the following recommendations for further research are offered.

1. A replication of the current study should be conducted which provides for a longer final exam time. A longer final exam time would provide for a better representation of total course content than was possible in the current study.
2. A study which includes a final exam comprised of both a problem-based exam component and an objective exam component should be conducted. An exam of this nature might better represent what students do during the regular school year.
3. Variables in addition to absences should be included in future studies comparing student achievement on problem-based exams and objective exams. Additional variables such as GPA, gender, and grade level may have an influence on final student achievement.
4. Student learning styles should be explored for their possible impact on final achievement. Various student learning styles could have a significant influence on student achievement based on the type of assessment: problem-based exam or objective exam.

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Students Attitudes Toward Work Groups in the Classroom

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Abstract

This study examined students attitudes about work groups. Students in six classes (n=150) completed pre- and post-tests. Findings are examined in three areas: attitude about experience with work groups, attitude about preferred work styles, and relationship between attitude toward work group experiences and preferred work styles. Gender was also examined in the first two areas. Individual attitudes toward work group experiences changed from the beginning to the end of the semester, even though the aggregate differences were not significant. Male and female changes were noted, but in opposite directions with males significantly more positive at the end of the semester. There were individual changes in work styles from the beginning to the end of the semester, although gender was not a significant factor. Previous group experience accounted for some change in attitude toward work style.

Introduction

Changes in our economy require interpersonal skills. Berryman (1993) identified two specific interpersonal skills necessary for collaboration that emerge from ethnographic and industry case studies—team work and conflict resolution. *Training's* 1997 Industry Report supports this when they found that 75 percent of the companies surveyed provided training for team building.

Schools have been frequently criticized for their failure to provide workers who are ready for work teams. One reason offered by Resnik (1987) is that group activities do occur in schools but students are ultimately judged on what they can do by themselves—the opposite of the expectations of business. Furthermore, the investigators frequently hear about students' frustration with groups. These negative comments provided the impetus for development of this investigation about attitudes toward cooperative learning.

Problem and Purpose

To determine the relationship between cooperative learning and attitude about groups, the following questions were addressed:

1. Did students' preferred *work styles* and self-reported *attitudes* about work groups change after a class group experience?
2. Did gender have an effect on the students' preferred *work styles* and self-reported *attitudes* about work groups?
3. What is the relationship between attitude about group experience and preferred work style?

Factors such as previous experiences with groups, either in classes or at work, achievement, or method of assignment were not addressed. The goal of the design was to simulate work conditions where these factors are not considered. The purpose of this study is to use the findings as the basis for designing instruction that will enhance students' perceptions about work teams.

Review of Literature

The review of literature addressed these topics: inter- and intrapersonal intelligence, learning/attitude relationship and collaborative groups, and implementing cooperative groups.

According to Armstrong (1994), interpersonal intelligence can be effectively developed through the use of cooperative groups by focusing on interpersonal interaction, conflict mediation, and peer teaching. Some individuals have highly developed interpersonal skills and are considered "people smart," but others who have highly developed intrapersonal intelligence prefer to work alone and are referred to as "self smart." Personal preference for working alone or with others may create a positive or negative attitude about group activities.

The connection between attitude and learning is strong, as is the relationship to collaborative groups. According to Mager (1984), things disliked have a way of being forgotten or avoided. The way others react towards a subject or activities will affect a student's approach to that subject or activity. One way to measure attitude is to ask students how they felt about an activity.

According to Johnson, Johnson, & Holubec (1994), a cooperative learning group is the instructional use of small groups through which students work together to maximize their own and each other's learning. Certain conditions must exist if a group is truly a cooperative learning group. These are: positive interdependence, individual and group accountability, promotive interaction, interpersonal and small group skills, and group processing (Johnson et al, 1994). These conditions were the framework around which instructional procedures were designed.

Methodology

Subjects were 150 students enrolled in six intact college classes: business communications, office supervision, and information technology. Students were excluded if they did not complete both pre- and post-tests or if they failed to respond to one or more survey items, leaving 110 complete sets of responses available for analysis—51 percent were female and 49 percent were male.

Because work groups in the business world are not self-selected, subjects were assigned to groups. Procedures were developed using guidelines for cooperative groups (Johnson et. al, 1994).

The instrument used for this study appeared in *The Teaching Professor* (Kinsella & Sherak, 1995). Items indicating independent and collaborative work styles were identified by the authors of the instrument. Participants also indicated whether previous group experience was "mostly positive," (39%); "just OK," (57%); or "mostly negative" (3.6%). The "mostly negative" responses were combined with the "just OK" category because of the small number.

After completing Cronbach's alpha to check reliability on the items in the instrument, exploratory factor analysis was performed and two scales were identified providing a work style preference that was either individualistic or collaborative, as well as a new scale indicating a preference for working with exactly one partner. The reliability analysis of these new scales indicated Cronbach's alpha for the pretest was .8248 and for the posttest was .8399 on the partnership scale. The alphas on the individualistic-collaborative scale were .8916 and .8824. These results were considered entirely adequate.

Comparisons of experience between the beginning and the end of the semester were carried out using a two-way contingency table. A test for difference in this table by gender was carried out using a three-way contingency table. Changes in scale means between the beginning and end of the semester were tested using 95 percent confidence intervals. Differences in these changes in scale means by gender were studied with analysis of variance.

Findings

Findings are discussed in three areas: attitude about experience with work groups, attitude about preferred work styles, and relationship between attitudes toward work group experiences and preferred work styles. The gender issues are addressed in the first two areas.

Work Group Experience

Statistically, there was not a significant difference between experience reported at the beginning and end of the semester. There was, however, a fairly substantial shift in the perceptions of the individuals between the "just OK" group and the "mostly positive" group. At least 25 percent of all participants changed their view with a slightly larger proportion changing their view from "just OK" to "mostly positive." Females showed no significant change although there was movement in the direction of perceptions from "mostly positive" to "just OK"; but males exhibited a significant change in attitude in favor of "mostly positive" group experience.

Preferred Work Styles

Attitude about preferred work styles did not significantly change. The most popular work style was pro-group/anti-partner; but there was a move toward pro-group/pro-partner. Lack of change in attitude about preferred work styles as determined by the aggregate means concealed a fair amount of individual movement. Changes between raw scores at the beginning and end of the semester were analyzed. Around 75% of the students had at least some small change in scores between the pretest and posttest. Around 40 percent of the students scored differently on the posttest partner scale with the changes being evenly distributed between those preferring to work with a partner and those preferring to work alone. There was no gender difference on these scores.

Work Group Experiences/Work Style

The relationship between attitudes toward work group experiences and preferred work style was significant on all scales. However there was no relationship between changes in scale values and pretest experience, posttest experience, or the combination of pre- and posttest experience. While there is a relationship between previous perceived group experience and measured work style, the etas indicate correlations in the range of .3 to .4. Therefore changes in group experience can explain 10 to 15 percent of changes in work style.

Discussion/Conclusions

Individual attitudes toward work group experiences changed from the beginning to the end of the semester, even though the aggregate differences were not significant. At least 25% of individuals in this study did change. Both male and female changes were noted, but in opposite directions. Males were significantly more positive at the end of the semester. Informal feedback from female students generally focused on their displeasure with the expectation of being responsible for the clerical tasks in addition to their contributory role.

There were also individual changes in work styles from the beginning to the end of the semester, although gender did not produce a significant difference. About 30 percent of the individuals changed work styles with about half becoming more receptive toward groupwork and the other half less receptive toward groupwork.

Previous group experience accounts for 10-15 percent of changes in attitude toward work style. Perhaps experience with the current group influenced these changes in perception. As Armstrong (1994) pointed out, preference for working alone or with others may create a positive or negative attitude about cooperative groups. Magers (1984) also indicated that things disliked are avoided.

The reported shift in attitude by individuals suggests that attitudes can be influenced by group experience. The existence of a relationship between experience and work style suggests that if appropriate positive experiences are provided in the classroom, more cooperative and thus better adapted future workers may be the result.

Implications

Additional research could include: (1) further development of Kinsella & Sherak's (1995) scale as a useful tool in differentiating individuals' work styles, (2) identification of other factors that may affect work style, (3) investigation of why male students showed improved attitudes but female students did not.

If we expect individuals to perform in a collaborative environment as work force participants, these individuals must have successful experiences as members of collaborative groups in school. The teacher needs to structure the classroom for enriching and developing collaborative work skills.

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Students' Perceptions of Content Areas in an Information Systems Technologies Curriculum

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Abstract

This study identified perceptions of students enrolled in a bachelor's degree program in information systems technologies with regard to content areas to be included within the curriculum. Programming language(s), operating systems, networks, troubleshooting, database software, systems analysis and design, word processing software, spreadsheet software, information security, disaster prevention/recovery systems, integrated information systems, groupware software and workgroup computing, and telecommunications were the content areas which were marked "extremely important" by the largest number of student respondents. The mean student responses for 25 course content areas were compared to responses to these same areas from a previous international study of employees whose companies were members of the Information Industry Association.

Introduction

The field of information systems is constantly changing due to the many technologies that are making an impact on end-user computing, multimedia, electronic communications, information management, and other organizational and business processes. These changes in the business environment are bringing about dramatic organizational redesign and reengineering. Information technologies are making it possible for people everywhere—school, work, home, and play—to be linked together with the capability to share information and communicate throughout the global environment.

With the ever-increasing development of technology, changes are occurring in the workforce, in the method of instructional delivery in the classroom, and in the curriculum itself. The changing curricula is a constant challenge to teachers who want to provide students with skills and knowledge that will make them competitive in the workforce. This can be seen by the recent revision of curricula models by various professional organizations. Some of these include the Association of Computer Machinery (ACM), the Data Processing Management Association (DPMA), the Association for Information Systems (AIS), and the Office Systems Research Association (OSRA). In the early 1990s, ACM, DPMA, and AIS joined together to develop a new Information Systems (IS) '95 curriculum. The model emphasizes four levels: a prerequisite level which goes beyond computer literacy, an end-user level which requires courses of all business graduates, a level for IS specialists which focuses on analysis and design, applications, and database courses; and an IS career level which requires courses in decision support systems, strategic planning and management, as well as modeling tools and applications (Caouette and Lutz, 1996). The updated Office Systems Research Association curriculum "prepares graduates of four-year collegiate programs for entry-level positions that involve the analysis, design, implementation and evaluation of information technologies through an 11-course sequence, all with prescribed levels, culminating with an internship" (Caouette and Lutz, 1996, p. 3). Through this curriculum, O'Connor (1996, p. 1) states that "graduates are prepared to: (1) analyze the needs of employees in a variety of business functions and recommend information systems solutions to improve performance, (2) assess the needs for, design, implement, and evaluate the information systems for the desktop computing environment, . . . training programs for nontechnical personnel, online help, reference systems, and user documentation, . . . networks, . . . software solutions, and (3) select and apply project management methodologies."

Purpose

The rapid spread of computers and computer-based technologies throughout the past two decades has generated a need for skilled, highly trained workers to design and develop hardware and software systems and to determine how to incorporate these advances into new or existing systems. "Although many narrow specializations have developed and no uniform job titles exist, this professional specialty group is widely referred to as computer scientists and systems analysts." (Farr, 1995, p. 42)

As information technologies continue to evolve, educators must identify the technologies used in business and industry and strive to provide curricula that will help students develop a better understanding of these technologies in order to apply them to support work processes and to improve employee performance and overall organizational effectiveness. It is our goal as educators to work together to stay abreast of the changing technologies so we can prepare students to locate, organize, and summarize the immense amount of information available at our fingertips.

According to the National Association of Colleges and Employers (1998, p. 1), "chief information officers from U.S. companies with 100 or more employees showed that networking expertise is the specialty du jour, with overall demand for network, local area network (LAN), and systems administrators especially strong right now." According to Kim, Keith, and Perreault (1995, p. 10), "Although the content of the Information Technology (IT) curriculum varies from campus to campus, in general, IT topics include computer hardware and software, systems design, telecommunications, productivity software packages, and information systems." In addition, most educators feel that IT topics should include strategic planning, analysis and design, and implementation and evaluation of systems. In analyzing managers' perceptions regarding content areas to be included in an information technology curriculum, Kim's et al. (1995) study found the topic of database concepts and principles to be the most important topic. Based on a study of Fortune 500 companies, Zhao (1996) recommended that business students possess computer end-user skills in the areas of computer hardware, operating systems, word processing, spreadsheets, databases, desktop publishing, and telecommunications.

Research Questions

In an attempt to provide information concerning content areas to be included in a four-year information systems technologies degree, answers were sought to the following questions:

1. What are the perceptions of Information Systems Technologies (IST) majors regarding the content areas they feel should be included in the curriculum to assist them in achieving their career goals?
2. How do the perceptions of IST majors regarding content areas to be included in the curriculum compare with the perceptions of those in business and industry?

Research Procedures

To assess and enhance course curricula, a research study targeting a new baccalaureate program which began the fall of 1997 was undertaken during the 1997-1998 school year. A survey instrument was designed and administered to 116 students with a primary major of Information Systems Technologies at a midwestern university. The survey instrument included sections on demographics, content areas to be included in the Information Systems Technologies' curriculum, and general subject areas to be placed in rank order of importance. A return rate of 80% (93 students) was obtained.

A previous international research study was conducted during the spring of 1996. A survey instrument, containing a listing of 25 content areas to be included in the Information Systems Technologies' curriculum, was mailed to a representative of 519 companies who were members of the Information Industry Association. The 25 content areas were identical to the listing given to the students. One hundred ten instruments in the international study were returned for a response rate of 21%. The responses for both surveys were coded onto a computer sheet for optical scanning, and analyses were completed using the Statistical Analysis System, Version 6.07. Further analyses were done to compare the mean responses to these 25 content areas of both groups—students and employees.

Findings and Results

Demographic Information

Age and Gender. In regard to age, 12% were less than 20 years old; 48% were 20 to 23 years of age; 20% were 24 to 30; 13% were in the age range of 31 to 40; and 7% indicated they were over 40 years of age. Fifty-three percent of the respondents were female, and the remaining 47% were male.

Ethnic Background. A majority of students (65%) indicated they were white. Twenty-four percent indicated they were black; 8% were Asian, 2% were Hispanic, and 1% marked other.

Educational Background. Respondents were asked to mark all answers that applied to their educational background. Of the 93 respondents, 93% indicated they had a high school diploma, and 7% indicated they had a GED. From the additional responses findings indicated that 52% had some college credit; 31% had an associate's degree; 4% had a bachelor's degree, and 1% indicated they had some graduate work or a graduate degree.

Enrollment Status. Over half the respondents (57%) indicated they were continuing students within the university who had changed their major to Information Systems Technologies. The next largest group, 32%, indicated they were transfer students; 8% were reentry students, and only 3% were new freshmen. When asked whether they were full-time (12 credit hours or more) or part-time (less than 12 credit hours) students, 87% marked 13% indicated they were part-time students enrolled in 1-11 hours.

Class Standing. With regard to class standing, 34% indicated they were juniors and 33% were seniors. Only 4% were freshmen and the remaining 28% were sophomores.

Research Question 1

The first research question was: What are the perceptions of Information Systems Technologies (IST) majors regarding the content areas they feel should be included in the curriculum to assist them in achieving their career goals?

The respondents were asked to indicate the level of importance they felt should be placed on 25 different content areas. They were to respond by selecting a number between 1 and 5, with 1 being not important, 2 being somewhat important, 3 being important, 4 being very important, and 5 being extremely important.

The choice of extremely important was selected by the largest number of respondents for the following 13 courses. They are programming language(s), operating systems, networks, troubleshooting, database software, systems analysis and design, word processing software, spreadsheet software, information security, disaster prevention/recovery systems, integrated information systems, groupware software and workgroup computing, and telecommunications. Table 1 indicates the importance the respondents felt should be placed on each of the content areas.

Research Question 2

The second research question was: How do the perceptions of IST majors regarding content areas to be included in the curriculum compare with the perceptions of those in business and industry?

The means of the responses of the students and of those employed in business and industry for the 25 content areas were compared. The five content areas receiving the highest means from the students were programming language(s), operating systems, networks, troubleshooting, and systems analysis and design. The top five content areas for the employees were telecommunications, operating systems, systems analysis and design, networks, and business communications. Table 2 shows a listing of the means for the 25 content areas for the two groups.

Conclusions and Recommendations

Based on the findings of the study, the following conclusions were made:

1. The respondents recommended placing the most emphasis within the curriculum on the content areas of programming language(s), operating systems, networks, troubleshooting, database software, systems analysis and design, word processing software, spreadsheet software, information security, disaster prevention/recovery systems, integrated information systems, groupware software and workgroup computing, and telecommunications.
2. Operating systems, networks, and systems analysis and design were identified in the top five content areas by both groups.
3. The content areas of accounting, business law, and statistics were the three areas that received the lowest means by both groups.

The following recommendations were made with regard to this research study.

1. Educators should continually gather input from students, graduates, and especially individuals in business regarding the importance of various content areas.

2. Educators should be cognizant of and respond to the changing technologies in the workforce and should continually update curriculum to meet the needs of business and industry.

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Table 1

Students' Emphasis Responses to Importance of Content Areas to Be Included in the Curriculum

Content Areas	Not Important	Somewhat Important	Important	Very Important	Extremely Important	n
Accounting	11	30	37	11	4	93
Business Communications	1	4	25	34	28	92
Business Law	5	20	36	23	9	93
Data Modeling	1	10	24	26	19	80
Database Software	0	5	14	21	53	93
Decision Support Systems	1	11	21	32	19	84
Disaster Prevention/ Recovery Systems	2	1	22	22	42	89
Encryption	2	8	19	24	23	76
General Principles Of Management	3	8	30	27	24	92
Groupware Software And Workgroup Computing	2	7	17	31	36	93
Hardware and Software Capital Expense Budgeting	1	8	33	29	17	88
Information Security	0	2	17	29	42	90
Integrated Information Systems	0	2	15	31	38	86
Networks (LANs And WANs)	1	3	7	22	55	88
Operating Systems	0	1	9	24	55	89
Programming Language(s)	0	3	7	20	62	92
Project Management Methodology and Software	0	3	13	39	30	85
Quality Assurance	2	9	29	23	18	81
Records Information Management	2	9	28	30	23	92
Spreadsheet Software	2	5	12	24	50	93
Statistics	9	30	35	12	4	90
Systems Analysis And Design	0	5	9	25	52	91
Telecommunications	0	10	18	28	35	91
Troubleshooting	1	2	11	24	53	91
Word Processing Software	3	4	14	20	52	93

Table 2
Comparison of Students' and Employees' Responses of Importance of Content Areas in the Curriculum

Content Areas	Student Means	Employee Means
Accounting	2.65	2.93
Business Communications	3.91	**3.99***
Business Law	3.12	2.64
Data Modeling	3.65	3.57
Database Software	4.31	3.90
Decision Support Systems	3.68	3.68
Disaster Prevention/Recovery Systems	4.13	3.81
Encryption	3.76	3.27
General Principles of Management	3.66	3.85
Groupware Software and Workgroup Computing	3.99	3.79
Hardware and Software Capital Expense Budgeting	3.60	3.29
Information Security	4.23	3.90
Integrated Information Systems	4.22	3.91
Networks (LANs and WANs)	**4.44***	4.01
Operating Systems	**4.49***	**4.07***
Programming Language(s)	**4.53***	**3.59***
Project Management Methodology And Software	4.13	3.81
Quality Assurance	3.57	3.75
Records Information Management	3.68	3.21
Spreadsheet Software	4.24	3.64
Statistics	2.69	3.05
Systems Analysis and Design	**4.36***	**4.04***
Telecommunications	3.97	4.13*
Troubleshooting	**4.38***	3.66
Word Processing Software	4.23	3.73

*Indicates one of the top five means within the subject group

Teaching Business Education as a Career

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Abstract

This study examined career patterns and level of job satisfaction among secondary-level business education teachers in the United States. Research questions were: (a) What are career patterns of secondary business education teachers? and (b) Is there a difference between those secondary business education teachers who seek alternative career routes and those who do not on selected teacher demographic characteristics? Data represented business teacher responses from all 50 states. A defined career pattern for nearly half of the business teachers emerged. A statistically significant difference between those seeking and those not seeking alternative careers was found on the demographic characteristics of age and geographic location.

Introduction

Knowledge about teachers' satisfaction with their work conditions, with teaching generally, and teachers' beliefs and attitudes toward students, schools, colleagues, and the profession are of interest to researchers and policymakers as they seek to improve the quality of teaching. Shin (1992) indicated that (a) career satisfaction is a significant predictor of how long teachers will tend to stay in teaching, and (b) secondary teachers are more likely to leave teaching than elementary teachers since they have more skills to locate other attractive occupations with more rewards and better working conditions.

Teachers' career plans will affect future teacher supply and demand (NCES, 1993.) Lortie (1973) drew attention to an odd gap in knowledge about teachers. "We have too few studies which explore the subjective world of teachers in terms of their conception of what is salient" (p. 490). The study of career patterns is important in providing valuable insights into the occupation, the individual, and society. Title (1990) suggested that empirical research to enhance teachers' levels of satisfaction be coupled with policy studies to prevent teacher attrition.

Little data is available regarding status of business education teachers at the secondary level. According to Yaworski (1974), business educators should continually evaluate professional and related fields as part of their total occupational development. Individuals need to be knowledgeable about the attributes of possible careers and also of the transferability of careers. Yaworski (1974) recommended that a study be conducted of secondary and postsecondary business education teachers to determine the degree of satisfaction with the occupation or profession. More studies of business teacher educators need to be conducted to better understand business educators' work attitudes (Schafer & Echternacht, 1992). Such study needs to be ongoing for observation of trends (Anderson & Sinha, 1997).

Objectives of the Study

This study sought to analyze career patterns of secondary-level business education teachers in the U. S. Research questions for the study included: (1) What are career patterns of secondary business education teachers? and (2) Is there a difference between those secondary business education teachers who seek alternative career routes and those who do not on selected demographic characteristics?

Literature Review

Job mobility, occupational careers, and organizational careers are important, complex phenomena, but study of career patterns has not received much attention. According to Maclean (1992), studying teacher career patterns is one way to better understand the behavior, perceptions, and occupational culture of school teachers.

The demographic profile of the 1990s teacher remains the same as it has been for decades, according to the U.S. Department of Education, (1993). A typical American teacher is a white female in her early 40s, working in a rural or small-town public school system, and making an average of $35,334 per year. Approximately 42% of K-12 teachers have a master's degree and about 5% have doctoral or educational specialist degrees. The current teaching force has more years of formal education than any other period in the nation's history (NCES, 1993).

Job turnover is linked to job satisfaction which may include the work itself, satisfaction with pay, promotion, supervision, and coworkers. Latham (1998) stated in a review of research that job satisfaction can improve teaching and help retain teachers, that intrinsic rewards play a greater role in teacher motivation and job satisfaction than extrinsic rewards, and that teacher satisfaction can be partly influenced by school policy

Tanner and Warr (1993) examined job satisfaction and intent to leave employment among secondary vocational teachers. These teachers perceived the probability of finding alternative employment certain compared to academic teachers. Younger teachers were more likely to leave and were also the least satisfied. Teaching is a highly mobile profession with many leaving the profession while others reenter each year.

Lortie (1973) stated that the main opportunity in teaching for making some major status change lies in leaving classroom work for full-time administration. The primary benefits earned by persistence in teaching through annual increases in pay are the outcome of seniority and course-taking. The incentive system does not respond to variation in effort and talent in classroom teachers. Some teachers aspire to become assistant principals, principals, central office coordinators, department chairs, or guidance counselors (Cohn, Kottkamp, & Provenzo, 1987). Teaching can lead to other positions if one decides to leave the profession. Opportunities for a second career may be in the field of education, in business and industry, with the federal government, or in other professions (Cutlip & Shockley, 1988).

According to Scriven (1991), there is a need for the development of a national database to obtain basic information on the business education profession. Little data are available regarding the status of business education faculty supply and demand at the secondary school level. Studies confirming the trend of a declining number of business education teachers at all levels were conducted by Wilkins and Graves (1991; 1997) and Anderson-Yates and Diggle (1995). The number of qualified business education teachers who provide training to the workers to tomorrow's workplace is gradually declining. Teachers are leaving the profession at all experience levels. A greater percentage of teachers are approaching retirement years, and fewer teachers are entering the profession. There is a reduction in the number of business education teachers, but the demand for information workers is increasing. Business education graduates are not entering the profession after graduation (Hopkins, 1987). McCannon and Stitt-Gohdes (1995) showed that secondary business education teachers agreed that the future of business education appeared to be unsure because of increased emphasis on academic courses.

Research Procedure

Using a descriptive design with the survey method, the study was conducted among secondary-level business education teachers in the United States. Using a stratified random sampling procedure, 15 public and private high schools from each state as identified in *The College Board Guide to High Schools* (1990) were selected for the sample of 765 schools.

The researcher-developed instrument was reviewed for content validity by a panel of seven experts (business teacher educators from five states). A pilot study w[illegible] conducted with 20 high school business education teachers in southern Illinois. After revision, the instrument was sent to the principal of each of the high schools in the sample with a request to ask a representative business education teacher from their staff to complete the instrument. Out of 304 (41%) responses received, data analysis was based on an adjusted sample of 284 (38%) response rate. From two to 11 responses were received from each of the 50 states and the District of Columbia.

Data were analyzed using frequencies, percentages, means, standard deviations, t-tests, standardized residuals, and Chi-square analyses.

Respondent Data

The typical business education teacher responding in this study was: a female, 44 years of age; married with 1.66 children; holding a master's degree; having 17 years of teaching experience; teaching keyboarding or computer literacy/applications; and a member of the State Business Education Association.

The majority of the business teachers had earned a master's degree, taught full time, held tenure status, and had completed certification requirements. Most (275 or 97%) business teachers taught at students in grade 11-12.

Teachers from schools in all 50 states in the United States and the District of Columbia participated in this study. Table 1 shows state-by-state responses.

Table 2 shows number of respondents by gender. The majority of the respondents were female (75%).

The ethnic background of respondent business teachers is presented in Table 3. A majority (259 or 91.8% respondents) were Caucasian.

Table 4 reflects that respondent mean age of business teachers was 44.25. The oldest respondent was 67 and the youngest was 23. Fewest respondents were in 36-40 years category (28 or 9.9%).

Table 5 indicates number of respondents by school type. Almost half of the respondents were from rural school districts and the other half were from urban and suburban. The majority of the respondents (90.8%) were from public schools.

Table 6 indicates courses taught by respondents. The majority of the respondents taught keyboarding, computer literacy, and accounting.

According to Table 7, 151 (53%) respondents reported holding membership in their state business education association and 109 (38%) held membership in the National Business Education Association (NBEA).

Most respondents (189 or 68%) indicated that they held membership in teachers union. The majority (154 or 81.5%) reported membership in the National Education Association (NEA).

Table 1
Number of Respondents by State

State	Response #	State	Response #
	(n = 304)		
Alabama	6	Montana	9
Alaska	6	Nebraska	9
Arizona	6	Nevada	6
Arkansas	8	New Hampshire	9
California	7	New Jersey	2
Colorado	6	New Mexico	6
Connecticut	8	New York	4
Delaware	5	North Carolina	5
District of Columbia	2	North Dakota	11
Florida	5	Ohio	9
Georgia	5	Oklahoma	4
Hawaii	10	Oregon	5
Idaho	7	Pennsylvania	5
Illinois	8	Rhode Island	8
Indiana	6	South Carolina	2
Iowa	9	South Dakota	6
Kansas	4	Tennessee	5
Kentucky	5	Texas	6
Louisiana	4	Utah	2
Maine	7	Vermont	7
Maryland	4	Virginia	10
Massachusetts	3	Washington	5
Michigan	5	West Virginia	5
Minnesota	4	Wisconsin	5
Mississippi	8	Wyoming	6
Missouri	5		

Table 2
Number of Respondents by Gender

Gender	Frequency	Percentage
Male	71	25.1
Female	212	74.9
Total	283	100.0

Table 3
Respondents by Ethnic Background

Ethnicity	Frequency	Percentage
African-American	12	4.3
American Indian	1	0.4
Asian	6	2.1
Caucasian	259	91.8
Hispanic	4	1.4
Total	282	100.0

Table 4
Number of Respondents by Age Range

Age Range	Frequency	Percentage	Mean
35 or less	66	23.2	44.25
36-40	28	9.9	
41-45	47	16.5	
46-50	70	24.7	
50+	73	25.7	
Total	284	100.0	

Table 5
Number of Respondents by School Type

	Frequency	Percentage
Location		
Rural	139	50.7
Urban	72	26.3
Suburban	63	23.0
Total	274	100.0
School Type		
Public	257	90.8
Private	26	9.2
Total	283	100.0

Table 6
Courses Taught by Respondents

Courses	Frequency	Percentage
Keyboarding	219	77.1
Computer Literacy/Applications	188	66.1
Accounting	171	60.2
Information Processing	89	31.3
Office Procedures	85	29.9
Other:*	61	21.4
Advertising	1	
Applied Economics	5	
Banking/Finance	4	
Bilingual Keyboarding	1	
Desktop publishing	12	
Entrepreneurship	6	
Introduction to Careers	7	
Office Technology	3	
Recordkeeping	6	
Speedwriting/Note Taking	6	
Technical English	1	
Travel	1	
Word Processing	11	
Workplace Readiness	1	
Business Law	51	17.9
Introduction to Business	51	17.9
Cooperative Education	40	14.0
Consumer Education	34	11.9
Business Math	30	10.5
Business Communications	27	9.5
Computer Programming	27	9.5
Marketing	26	9.1
Shorthand	19	6.6

Note. Some indicated teaching more than one subject area

Table 7
Respondent Membership in Professional Organizations

Membership	Frequency (n=284)	Percentage
State business education association	151	53.1
National Business Education Association	109	38.3
State vocational association	56	19.7
Other	44	15.2
American Vocational Association	37	13.0
Delta Pi Epsilon	31	10.9

Note. Some had membership in more than one professional organization.

Table 8 presents salary range of business teachers. Seventy (25%) respondents were earning in the $40,001-50,000 salary range.

Table 8
Salary Range of Respondents

Salary Range	Frequency	Percentage
10,001 - 15,000	3	1.7
15,001 - 20,000	8	2.8
20,001 - 25,000	29	10.3
25,001 - 30,000	39	13.9
30,001 - 35,000	51	18.2
35,001 - 40,000	45	16.1
40,001 - 50,000	70	25.0
Over 50,000	34	12.0
Total	279	100.0

Findings

Research Question 1. What are the career pattern of business education teachers?

Figures 1 through 3 show different career patterns of business education teachers. Most business teachers followed three different career paths.

The career path of the majority (216 or 76%) of the business teachers career started from three different points of life: (a) career starting with a bachelor's degree—171; (b) career starting working for business—37; and (c) career starting with military service—8. Career paths of the other 71 (25%) respondents were varied.

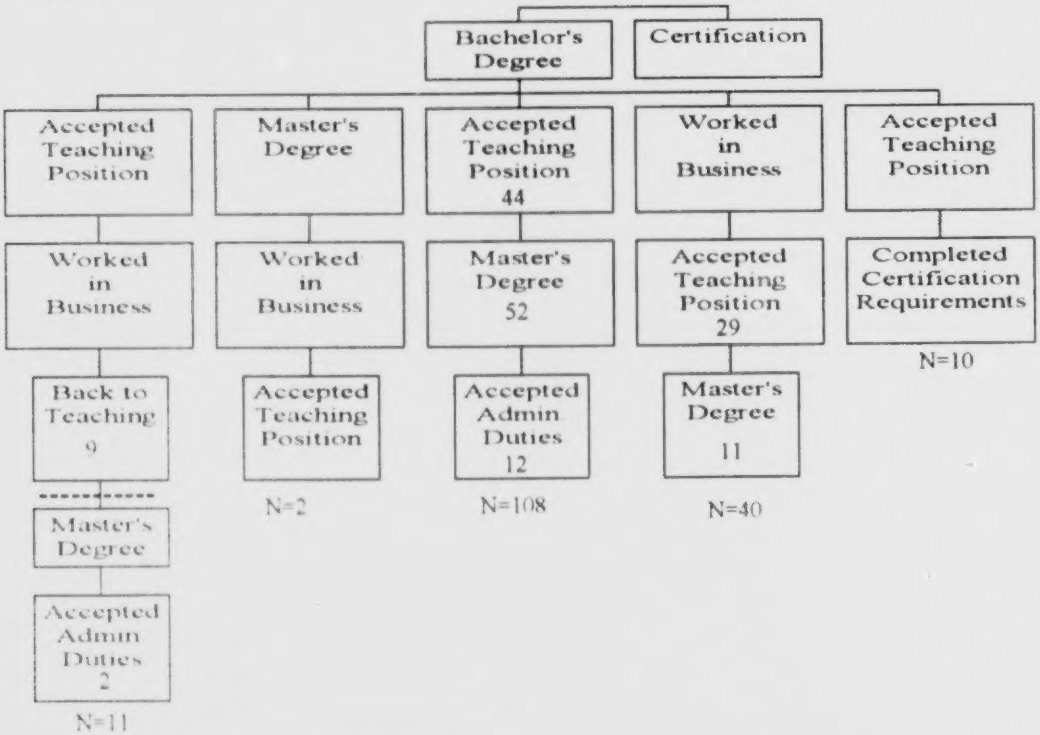
Figure 1 shows the most common career pattern that emerged: (a) obtaining a bachelor's degree, (b) completing certification requirements, (c) obtaining a teaching position, and (4) obtaining a master's degree.

Out of 171 respondents, 108 respondents indicated the following sequence: (1) Concurrently completed their bachelor's degrees and met certification requirements; (2) 44 indicated that they had accepted a teaching position; (3) 52 had received a master's degree while continuing to teach and (4) finally, 12 indicated that they had accepted administrative duties.

Figure 2 shows a career pattern of 37 respondents who started their career working for business. It shows that 25 respondents (a) earned a bachelor's degree and completed certification requirement, (b) accepted a teaching position, (c) earned a master's degree, and finally, (d) accepted administrative duties. Another 12 respondents accepted a teaching position after earning a bachelor's degree and completing certification requirements.

Figure 3 show the career patterns of those respondents who started their career with military service (8). Five respondents followed this career path: (a) earned a bachelor's degree, (b) completed certification requirements, (c) accepted a teaching position, (d) earned a master's degree and (e) accepted administrative duties.

Figure 1
Career Starting Working for Business
N=171


Bachelor's Degree
Certification
Accepted Teaching Position
Worked in Business
Back to Teaching 9
Master's Degree
Accepted Admin Duties 2
N=11
Master's Degree
Worked in Business
Accepted Teaching Position
N=2
Accepted Teaching Position 44
Master's Degree 52
Accepted Admin Duties 12
N=108
Worked in Business
Accepted Teaching Position 29
Master's Degree 11
N=40
Accepted Teaching Position
Completed Certification Requirements
N=10

207

Figure 2

Career Starting with B.S. Degree and Certification

N=37

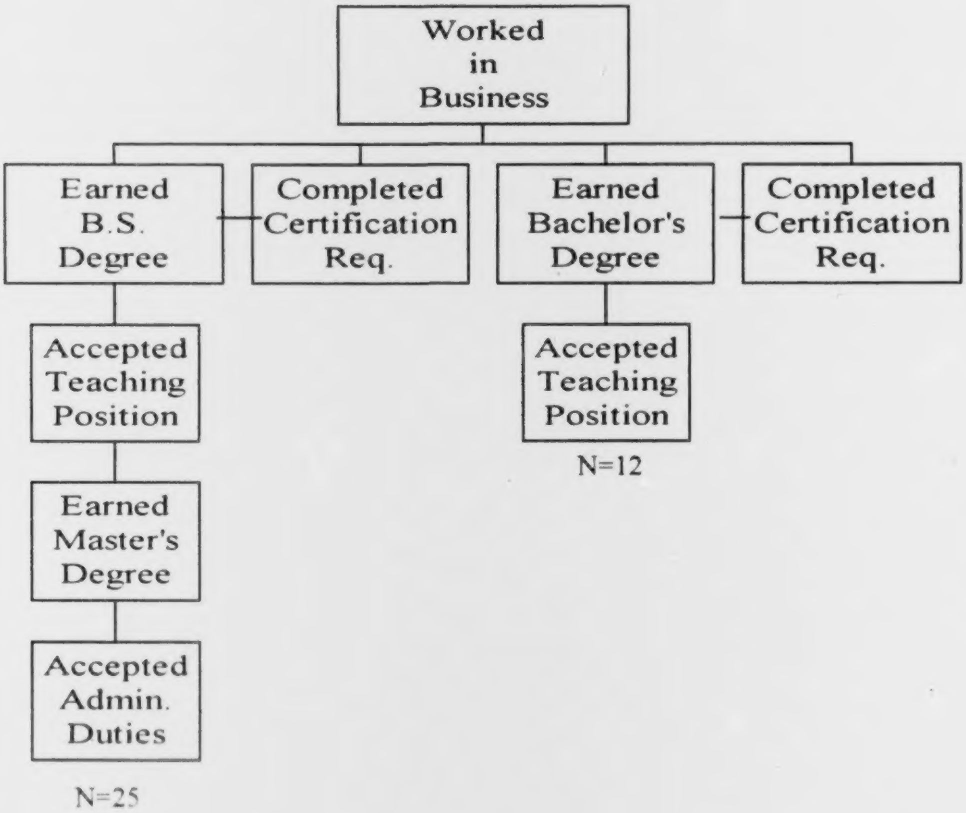
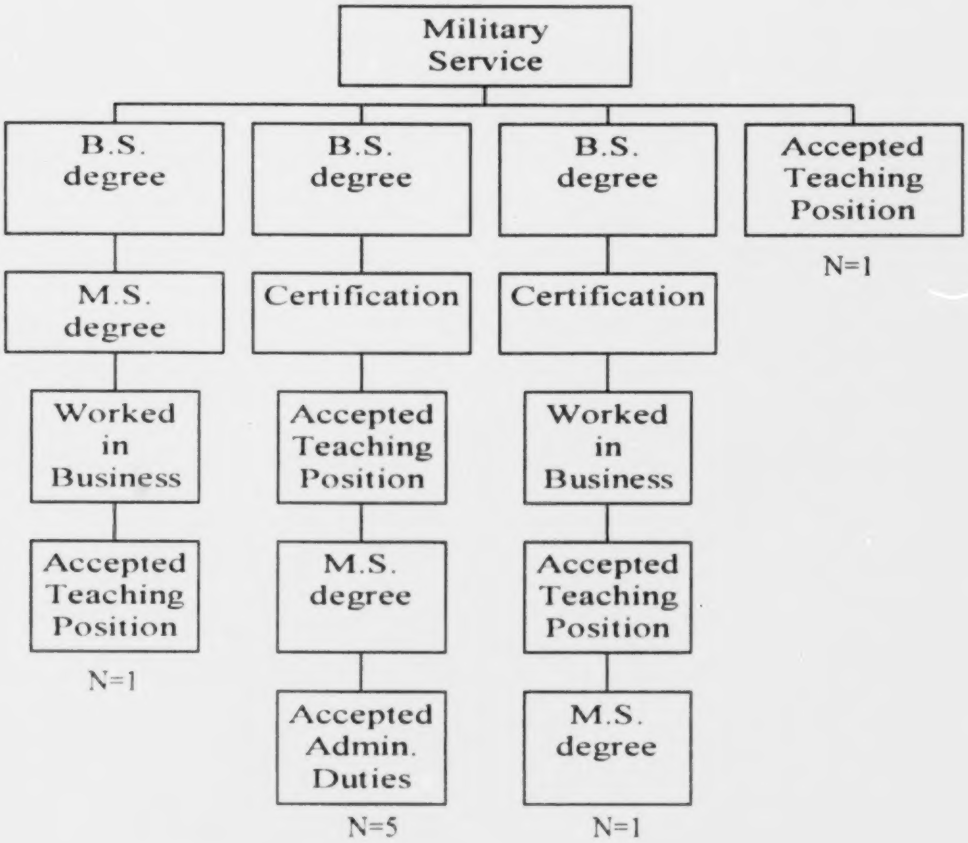

Worked in Business
Earned B.S. Degree
Completed Certification Req.
Earned Bachelor's Degree
Completed Certification Req.
Accepted Teaching Position
Earned Master's Degree
Accepted Admin. Duties
N=25
Accepted Teaching Position
N=12

Figure 3
Career Starting With Military Service
N=8


Military Service
B.S. degree
B.S. degree
B.S. degree
Accepted Teaching Position
N=1
M.S. degree
Certification
Certification
Worked in Business
Accepted Teaching Position
Worked in Business
Accepted Teaching Position
M.S. degree
Accepted Teaching Position
N=1
Accepted Admin. Duties
M.S. degree
N=5
N=1

Research Question 2. Is there a difference between those secondary business education teachers who seek alternative career routes and those who do not on selected demographic characteristics of age, gender, race, marital status, number of children, and geographic location?

About half of the business teachers (48.6%) were seeking an alternative career route while half were not (51.4%). A significant difference was found between seekers and non-seekers on two demographic variables – age and geographic location. No statistically significant difference was found among the other variables of gender, race, marital status, and number of children.

Age. Table 9 describes results of the chi-square analysis and shows a statistically significant difference in age between those who are seeking alternative career routes and those who are not ($X^2 = 17.34$ with 4 degrees of freedom and a p value $< .05$). The 35 or less age group was the primary contributor to a statistically significant difference among the age groups.

Geographic Location. Table 10 shows a statistically significant difference between seekers and nonseekers of other careers by geographic region with p value $< .05$. The majority of the respondents from the South indicated that they did not seek alternative career routes compared to other geographic regions.

Table 9
Chi-Square Analysis of Seekers and Nonseekers by Age

Age		Seekers			Nonseekers	
Group	n	%	R	n	%	R
35 or less	46	69.70	2.46*	20	30.30	-2.39*
36-40	13	46.43	-0.16	15	53.57	0.15
41-45	15	33.33	-1.46	30	66.67	1.42
46-50	32	45.71	-0.34	38	54.29	0.33
51+	31	42.47	-0.75	42	57.53	0.72
TOTAL	137			145		

Note *>|1.96| Chi-square (4,n = 282)= 17.34, p = 0.002

Table 10
Geographic Distribution of Seekers and Nonseekers

Geographic		Seekers			Nonseekers	
Region	n	%	R	n	%	R
East	30	21.9	0.71	24	16.7	-0.69
Midwest	38	27.7	0.23	37	25.7	-0.23
South	27	19.7	-1.72*	50	34.7	-1.67*
West	42	30.7	0.89	33	22.9	0.87
Total	137	100.0		144	100.0	

Note *|1.96| Chi-square (3,n = 281) = 8.46, p = 0.037

Conclusions and Recommendations

Female teachers still dominate business education profession. Business education teachers are leaving the profession, which will eventually affect the future supply and demand of business education teachers.

Additional research is needed to study the career patterns of business education teachers to better understand the occupation and to predict teacher supply and demand. Analysis of career development opportunities for secondary business education teachers should be conducted. Qualitative research should be used to identify issues and problems faced by business education teachers that affect their professional life and the profession as a whole.

Career status and satisfaction of secondary business education teachers needs to be assessed to improve working conditions in order to attract and retain teachers in the profession. Business education must attract students at every educational level with strong curricular content that will prepare America's workforce to meet the challenges of today's technological workplace.

To enhance the image of business education, mission and roles need to be reviewed, high teaching standard needs to be established, a career ladder with professional hierarchy of ranks need to be established, the salary scale must be reviewed, opportunity for professional advancement must be created, and a recognitions and rewards system needs to be established to recognize excellence in teaching.

Implications of the Study

This study was an attempt to contribute to the body of knowledge about business education teachers. Little data are available regarding status and job satisfaction of business education teachers at the secondary and community college levels. Continued research is needed in areas such as job satisfaction, career status, and career pattern to better understand business educators' work attitudes.

Job mobility, occupational careers are important phenomena. Study of career patterns has not received much attention. Studying career patterns is one way to better understand the behavior, perceptions, and occupational culture of school teachers.

Results of this study would be of interest to business education teachers, administrators, and business teacher educators. This study provided valuable insight to the business education profession in identifying career patterns and level of job satisfaction with teaching as a career.

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Workforce Preparedness of Business/Office Education Graduates

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Abstract

The study reviewed the job preparedness of business and office education majors at the secondary and postsecondary levels of the education system. It considered two primary issues: (a) Are students learning the skills that are most needed in office careers, and (b) Do students report learning the skills their teachers report they are teaching. Critical office support skills include document processing, mail management, copying and faxing, telephone skills, communication, teamwork, and prioritizing work. They also include working with minimum supervision, monitoring personal progress, maintaining confidentiality of information and files, using good judgment, being accurate, following oral and written instructions, and managing time well.

While most postsecondary respondents were prepared for business support jobs, most secondary students need more preparation. The deficiencies are mostly in the areas of customer/human/ public relations skills and in general administrative skills. They are best prepared in end-user computer skills. The study also found differences in the skills teachers reported teaching and those students were learning. The differences were statistically significant in 33 percent of the skills reviewed.

Background

There continues to be concern about the diminishing skills of workers versus the increasing demands of a competitive global economy. Initiatives such as the National Skills Standards Act of 1994 and the SCANS (Secretary's Commission on Necessary Skills) have addressed the issue. SCANS, for example, requires the integration of vocational and academic skills with industry-related skills to ensure a well prepared worker. Brown (1997) also discussed several task analysis efforts, all geared at promoting effective skill development.

Packer (1993) considered one of the major challenges of the 1990s to be preparing high performance workers for the 21st century. He maintained that high performance firms require workers who are proficient in the SCANS competencies (basic skills, thinking skills, and personal qualities). Cappelli (1993) examined changes in skill requirements of several different occupational areas. Regarding clerical skills, he concluded that the change was rather complicated, with approximately an even split between jobs that were demanding higher skill levels (upskilled) and those that were demanding lower skill levels (deskilled). He attributed the main changes to new office equipment [technology].

Since the SCANS Report of 1991, several local and Federal efforts have focused on developing benchmarks or skills standards for various occupations. These include the Federal initiative, Goals 2000: Educate America Act which authorized the development of occupational clusters. As Tucker (1995) noted, the fundamental challenge of Goals 2000 was to ensure that students and workers are able to acquire and maintain necessary skills to be productive in our rapidly changing work environment.

Sheets (1995) asserts that the Goals 2000 mandate is based on the assumption that workers can no longer be trained for a single job, but should be educated, trained, and certified for a broad set of cross-occupational skills. And, Gottfredson (1994) agreed with an earlier observation that jobs were becoming more "hands-off", abstract and interpersonal, requiring more general skills and handling of exceptions [rather than observing rules]. Yet, many jobs continue to require specific technical skills together with the ever important "soft" skills.

In office support careers, technology, globalization, and leaner, flatter organizations demand higher skills of business support workers. Kerka (1995) noted that in addition to word processing, support staff now deal with faxes, voice mail, e-mail, local area networks, desktop publishing, spreadsheets, and databases. These additional responsibilities require high skill levels, however, Alexander and Underwood (1994) noted that these skills are somewhat lacking.

Office support careers are fairly broad and require a wide variety of skills. For example, secretaries are expected to have good oral and written communication skills, interpersonal skills, a wide range of computer skills, and office equipment skills (Giles, et al, 1996). Smiling (1995) listed time management, ability to juggle multiple tasks, and prioritize effectively as other skills that office support personnel need. While Scheetz (1995) found that good oral, written, and interpersonal communication skills were among the most important attributes of successful new hires, the study also noted that these were among the most notable deficiencies observed. This study also found that computer literacy and a command of popular office technology were among the most sought after skills in future employees.

Techniques magazine (1997) in an article on *Hiring Trends*, listed several employer expectations. Among them were a strong work ethic; ability to "hit the ground running"; computer fluency, including knowledge of software packages and Internet skills; ability to communicate effectively and to work as part of a team. Schools were challenged to emphasize a career mentality instead of a job focus and to give students information about career paths.

Research Problem and Purpose

Business and industry expect the education system to send them workers who are prepared in the basic job skills related to the positions that they seek. However, too often graduates are less prepared than entry-level positions require them to be. This has led to a continuous litany of criticism of the education system and call from employers for schools to do a better job in preparing entry-level workers. The problem of the study was: To what extent are business/office education students prepared for the job positions that they seek?

The primary purpose of this study was to review the job preparedness of business support workers who are trained in secondary and postsecondary level programs. The study also attempted to assess the extent to which students are learning the skills their teachers are reportedly teaching them.

Research Questions

The study sought answers to the following questions:

1. What do the demographics reveal about students who are being prepared for business support careers?
2. Are there differences between the skills taught and learned in business and office education programs?
3. How do business support competencies developed at the secondary and postsecondary levels of the school system compare to the skills that business support specialists use on their jobs?
4. What deficiencies exist in the preparation of business support specialists at the secondary and postsecondary education levels?

Methodology and Data Analysis

During the 1996-97 academic year, data were collected on the competencies learned by business/office education students at the secondary and postsecondary levels. Business education students and teachers reported on competencies taught and learned in business and office education courses.

This descriptive study used a survey instrument to collect data from business education teachers and students. The Likert-type scales which formed the major part of the instrument were based on a thorough review of the literature and on primary research data gathered among practitioners (office support workers) as part of a larger study that was sponsored by Delta Pi Epsilon. The questionnaire also gathered some demographic data.

The primary data were analyzed using the SPSS software package for the personal computer, Windows Version. Tables display the results of descriptive statistics and Chi squares.

Findings

The main findings of the study follow:

Table 1 shows that two-thirds of the business education students in the study were females. Approximately 50 percent had business experience, and over 75 percent were taking business education for both job preparation and personal use. Only 9.7 percent of high school respondents reported that they planned to go directly to work after high school. Over 70 percent planned to pursue postsecondary educationC46.6 percent at the four-year college level and 26.6 percent at the community college level.

Table 1
Characteristics of Student Respondents (N=285)

Characteristics	Frequency	Percent
Gender (N= 285)		
Male	96	33.7
Female	188	66.0
No Response	1	0.4
Educational Level (N=285)		
Four-year college	9	3.2
Community college	40	14.0
High school	222	77.9
Other	14	5.0
Class Rank (N=285)		
Seniors	106	37.2
Juniors	61	21.4
Sophomores	65	22.8
Freshmen	34	11.9
No Response	19	6.7
Business Work Experience (N=285)		
Yes	137	48.1
No	139	48.8
No Response	9	3.2
Purpose for Taking Business Education (N=285)		
Job skills	39	13.7
Personal Use	18	6.3
Both	215	75.4
No Response	13	4.6
Post High School Plans (N=222)		
Four-year college	99	44.6
Community college	59	26.6
Work	22	9.7
Unsure	24	10.9
No Response	18	8.1

As shown in Table 2, significant differences were found between teachers' and students' responses on 12 of the administrative skills, on seven of the end-user computer skills, and on five of the professional behaviors. Generally, teachers and students agreed on the development of such administrative competencies as keying routine office correspondence, and proofreading. Customer/human/public relations skills were, generally, not well developed. The strongest areas of preparation, as reported, by both teachers and students were end-user computer skills and professional behaviors.

Table 2
Competencies Taught and Learned in Business Education Programs

	(Percentage)			
Competencies	Taught (N=75)	Learned (N=285)	X^2	Sig.
Administrative Skills				
Perform liaison work with other administrative and management personnel in the organization	34.7	49.5	5.12519	.07710*
Perform liaison work between the organization and representatives of other organizations	25.0	43.4	9.15838	.01026**
Supervise technical/clerical staff	29.2	13.1	11.65743	.00294***
Assist in preparing annual budget	25.0	21.2	0.66270	.71795
Coordinate the development and maintenance of department's procedures manual(s)	26.0	18.1	4.41769	.10983
Review and log incoming mail	54.2	34.6	9.40210	.00909***
Draft responses to routine correspondence	74.0	47.9	16.25477	.00030***
Prioritize/assign work	77.8	54.0	13.52924	.00115***
Prepare extensive reports	39.2	63.6	16.38198	.00028***
Take dictation	29.7	38.5	1.95511	.37623
Transcribe pre-recorded dictation	51.3	33.6	7.92397	.01903**
Key routine office correspondence (letters, memos, etc.)	86.7	84.5	0.23835	.88765
Operate copying machine	50.0	67.8	8.65745	.02318**
Act as a receptionist at information desk	48.6	41.9	1.37316	.50330
Sort/distribute incoming mail	51.3	67.0	1.72994	.42106
Maintain payroll and/or personnel records	58.9	45.1	4.45960	.10755
Maintain a manual/electronic filing system	59.9	42.2	7.03750	.02964**
Conduct/plan on-the-job training	30.1	28.9	1.43648	.48761
Prepare requisitions and vouchers for purchasing equipment and supplies	59.5	39.9	9.50602	.00863***
Complete expense reports	52.7	43.8	3.20034	.20186
Schedule appointments	48.6	59.9	4.42424	.10947
Make travel arrangements	50.0	41.9	3.41371	.18144
Receive and route incoming telephone calls	49.9	56.2	2.80012	.24658
Review and post daily attendance data	34.2	41.6	2.33593	.31100
Proofread for spelling, grammar, and punctuation errors	89.3	82.1	2.72199	.25641
Sign correspondence on behalf of the manger	50.0	28.9	12.08396	.00238***
Maintain petty cash funds and other similar records	50.0	41.0	3.19724	.20218
Maintain manager's calendar	41.9	28.8	4.70838	.09497*
Schedule meetings and coordinate meeting agenda	51.3	41.4	3.08174	.21419
Attend meetings and take and transcribe minutes	37.0	45.4	1.97221	.37303
Gather, analyze, and interpret data to complete assigned projects	51.3	57.2	6.09966	.04737**
Assist with budget projections and control	28.4	21.6	2.39210	.30239
Key legal documents, contracts, plans, etc.	55.4	47.5	2.29864	.31685
Evaluate work performance, prepare and sign evaluations	30.1	28.8	0.06394	.96854
Maintain office supplies	35.6	43.3	3.89802	.14242

table 2 continued

Table 2, continued

Competencies	Taught (N=75)	Learned (N=285)	X^2	Sig.
	(Percentage)			
Update and maintain job description index and file	20.5	30.5	3.51385	.17257
Maintain a ledger	42.5	35.8	2.01762	.36465
Screen resumes	26.0	22.9	0.61404	.73564
Post new job positions	15.1	17.5	0.32706	.84914
Test job applicants	10.9	17.6	1.88586	.38949
Maintain production records	26.0	23.2	0.26174	.87733
Research and compile statistical data	26.0	31.2	0.78355	.67586
Establish and maintain confidential files	25.7	27.5	0.21710	.89714
Customer/Human/Public Relations Skills				
Represent the manager through routine oral and written contact	55.4	60.6	1.07945	.58291
Assist callers and take complete messages	29.7	26.5	0.86408	.64918
Assist in resolving administrative problems	28.4	18.7	3.46722	.17665
Customer/Human/Public Relations Skills				
Develop and revise department's/organization's policies	42.7	32.7	3.07273	.21516
Problem solve and trouble shoot customer inquiries	17.6	19.4	0.13090	.93664
Canvass new accounts and/or contact existing accounts	57.3	48.2	2.65388	.26529
Handle customer complaints	42.5	30.0	4.40381	.11059
End-User Computer Skills				
Do data entry	53.3	38.9	5.60987	.06051*
Compile reports and distribute information	70.7	67.5	1.50943	.47014
Do desktop publishing	74.7	54.6	10.06401	.00653***
Revise stored documents	93.3	78.9	8.77554	.01243**
Print final documents	93.3	89.0	1.24192	.53743
Maintain up-to-date archive library, copying, deleting, and retrieving documents as necessary	80.0	75.3	1.15418	.56153
Maintain diskette and index files	80.0	78.5	0.10429	.94919
Maintain and update mailing lists	54.1	51.6	0.14517	.92998
Update files via personal computer directly into the main-frame	32.4	47.5	5.58253	.06134*
Use personal computer to key variety of material	96.0	75.1	16.00049	.00034***
Utilize personal computer to obtain information	84.0	76.8	1.80654	.40524
Use word processing software	94.7	85.6	4.70265	.09524*
Prepare and maintain spreadsheets	78.7	78.2	0.00803	.99599
Prepare and maintain database files	60.1	76.3	3.92376	.14059
Serve as computer system coordinator	9.7	15.1	1.89447	.38781
Maintain computerized calendars	38.7	33.1	1.30723	.52016
Create graphs	70.6	70.1	1.08351	.58173
Use a fax machine	27.0	34.9	1.62438	.44389
Compile data and statistics using mainframe computer	16.2	31.2	6.57829	.03729**
Use a local area network and or e-mail	53.3	41.8	3.26753	.19519

table 2 continued

Table 2, continued

Competencies	Taught (N=75)	Learned (N=285)	X^2	Sig.
	(Percentage)			
Professional Behaviors				
Use good judgement in selecting alternative courses of action	80.0	81.1	0.04420	.97814
Set own work schedule	74.7	70.5	1.50537	.47110
Monitor personal progress and performance	79.7	70.4	2.57741	.27563
Exercise independent judgement in interpreting and releasing information	54.1	59.3	1.31083	.51923
Assure security/confidentiality of files	68.9	49.8	8.89186	.01173*
Review forms and documents for accuracy		91.9 67.8	17.49214	.00016***
Exercise discretion and judgement in handling sensitive issues	74.3	60.3	5.14202	.07646*
Follow oral and written instructions	98.6	88.4	7.36827	.02512*
Practice personal time management	97.3	73.2	19.68129	.00005***

***p>.01
**p>.05
*p>.1

Larger percentages of postsecondary students reported that they are prepared to perform the administrative skills that most office support practitioners perform on their jobs. Fewer secondary school respondents reported that they have been trained in these skills. In a few cases, postsecondary respondents seem to emphasize competencies that are not performed by many business respondents, for example taking dictation, maintaining petty cash funds, and maintaining ledgers. As shown in Table 3, the skills that most office support professionals use on their jobs include working with other administrative and management personnel in the organization, reviewing and logging incoming mail, drafting responses to routine correspondence, prioritizing/assigning work, keying office correspondence, operating copying machine, receiving and routing telephone calls, proofreading documents, assisting callers and taking messages, revising stored documents, word processing, and using fax machine. Their professional behaviors include setting own work schedule, monitoring personal progress and performance, exercising judgment in interpreting and releasing information, assuring securing and confidentiality of files, reviewing documents for accuracy, exercising discretion and judgment in handling sensitive issues, following oral and written instructions, and practicing personal time management. All office workers in the study reported having to exercise discretion and judgment in handling sensitive issues, following oral and written instructions, and practicing personal time management.

Table 3
Business Support Skills Developed at the Secondary and Postsecondary Levels and Those Practitioners Use on Their Jobs

Skills	Percentages		
	Secondary (N=219)	Postsecondary (N=64)	Job (N=215)
Administrative Skills			
Work with other administrative and management personnel in the organization	42.8	71.9	95.4
Perform liaison work between the organization and representatives of other organizations	41.0	50.0	89.9
Supervise technical/clerical staff	13.5	12.5	68.8
Assist in preparing annual budget	23.4	12.5	60.6
Coordinate the development and maintenance of department's procedures manual(s)	15.8	26.6	72.0
Review and log incoming mail	24.8	68.8	91.3

table 3 continued

Table 3, continued

Skills	Percentages		
	Secondary (N=219)	Postsecondary (N=64)	Job (N=215)
Draft responses to routine correspondence	39.2	75.0	98.6
Prioritize/assign work	46.8	76.6	94.5
Prepare extensive reports	58.6	76.2	82.1
Take dictation	29.3	68.8	57.8
Transcribe pre-recorded dictation	25.7	59.7	47.2
Key routine office correspondence (letters, memos, etc.)	82.0	90.6	95.0
Operate copying machine	69.4	60.9	99.1
Act as a receptionist at information desk	36.9	57.4	63.3
Sort/distribute incoming mail	35.6	68.8	87.2
Maintain payroll and/or personnel records	38.3	68.8	62.0
Maintain a manual/electronic filing system	36.0	63.5	86.7
Conduct/plan on-the-job training	30.2	23.8	67.0
Prepare requisitions and vouchers for purchasing equipment and supplies	30.6	71.9	88.1
Complete expense reports	37.4	62.5	84.4
Schedule appointments	54.5	78.1	83.6
Make travel arrangements	32.9	73.4	88.1
Receive and route incoming telephone calls	50.5	75.0	96.3
Review and post daily attendance data	41.9	39.7	50.9
Proofread for spelling, grammar, and punctuation errors	81.1	85.9	95.4
Sign correspondence on behalf of the manger	21.6	53.1	86.2
Maintain petty cash funds and other similar records	31.1	74.6	46.8
Maintain manager's calendar	17.6	68.8	80.3
Schedule meetings and coordinate meeting agenda	31.5	76.6	89.0
Attend meetings and take and transcribe minutes	41.4	59.4	66.7
Gather, analyze, and interpret data to complete assigned projects	53.2	72.6	84.9
Assist with budget projections and control	22.1	19.0	59.2
Key legal documents, contracts, plans, etc.	41.9	68.3	66.0
Evaluate work performance, prepare and sign evaluations	27.0	35.9	42.2
Maintain office supplies	39.6	56.3	82.6
Update and maintain job description index and file	28.4	39.1	62.4
Maintain a ledger	26.6	67.2	34.4
Screen resumes	22.5	25.0	40.8
Post new job positions	19.4	12.5	37.6
Test job applicants	18.0	17.2	23.9
Maintain production records	22.5	26.6	25.2
Research and compile statistical data	26.6	46.0	61.0
Establish and maintain confidential files	22.5	45.3	87.6
Customer/Human/Public Relations Skills			
Represent the manager through routine oral and written contact	23.4	73.4	87.6
Assist callers and take complete messages	56.8	54.0	94.5
Assist in resolving administrative problems	18.9	28.1	89.9
Develop and revise department's/organization's policies	15.8	67.2	66.5
Problem solve and trouble shoot customer inquiries	23.0	37.5	84.4
Seek new accounts and/or contact existing accounts	14.0	85.9	26.1
Handle customer complaints	37.4	53.1	70.6

table 3 continued

Table 3, continued

Skills	Percentages		
	Secondary (N=219)	Postsecondary (N=64)	Job (N=215)
End-User Computer Skills			
Do data entry	79.3	82.5	83.5
Compile reports and distribute information	62.6	62.5	89.4
Do desktop publishing	51.8	79.7	57.8
Revise stored documents	78.8	92.1	91.7
Print final documents	86.9	81.0	87.2
Maintain up-to-date archive library, copying, deleting, and retrieving documents as necessary	73.9	85.9	88.1
Maintain diskette and index files	75.7	62.5	88.1
Maintain and update mailing lists	48.2	43.8	77.5
Update files via personal computer directly into the main-frame	48.2	79.7	54.6
Use personal computer to key variety of material	73.4	78.1	89.9
Utilize personal computer to obtain information	76.6	89.1	88.5
Use word processing software	84.7	85.9	95.4
Prepare and maintain spreadsheets	75.7	70.3	75.7
Prepare and maintain database files	73.0	70.8	67.0
Serve as minicomputer system coordinator	17.1	37.5	33.9
Maintain computerized calendars	31.5	85.9	64.1
Create graphs	73.0	31.1	66.5
Use a fax machine	35.6	21.9	90.8
Compile data and statistics using mainframe computer	33.8	51.6	45.9
Use a local area network	38.7	45.3	81.7
Communicate using e-mail	36.9	71.9	46.8
Professional Behaviors			
Use good judgement in selecting alternative courses of action	77.5	89.1	67.4
Set own work schedule	68.5	78.1	95.9
Monitor personal progress and performance	68.9	75.0	97.2
Exercise independent judgment in interpreting and releasing information	54.5	76.6	94.5
Assure security/confidentiality of files	42.8	75.0	97.7
Review forms and documents for accuracy	61.7	87.5	97.7
Exercise discretion and judgment in handling sensitive issues	52.7	84.4	100.0
Follow oral and written instructions	87.4	90.6	100.0
Practice personal time management	68.5	89.1	100.0

Table 4 lists several competencies that considerably large percentages of practitioners reported using on their jobs, but which only relatively small percentages of secondary and postsecondary respondents reported having. There are several more such competencies that only postsecondary respondents reported having (Table 3). These reflect some of the skills that are not being adequately taught in business education curricula.

Table 4
Common Job Skills Not Adequately Covered in the Curriculum

Job Skills Needing Greater Curricula Emphasis	Percentages		
	Job (N=215)	Secondary (N=219)	Postsecondary (N=64)
Administrative Skills			
Coordinate the development and maintenance of department=s procedures manual(s)	72.0	15.8	26.6
Supervise technical/clerical staff	68.8	13.5	12.5
Assist in preparing budget	60.6	23.4	12.5
Conduct/plan on-the-job training	67.0	30.2	23.8
Update and maintain job description index and file	62.4	28.4	39.1
Establish and maintain confidential files	87.6	22.5	45.3
Customer/Human/Public Relations Skills			
Assist in resolving administrative problems	89.9	18.9	28.1
Problem solve and troubleshoot customer inquiries	84.4	23.0	37.5
Handle customer complaints	70.6	37.4	53.1
End-User Computer Skills			
Maintain and update mailing lists	77.5	48.2	43.8
Use a fax machine	90.8	35.6	21.9
Use local area network	81.7	38.7	45.3

Conclusions and Discussion

The following conclusions are drawn from the findings of the study:

1. Business education programs continue to attract more female students than males. Most plan to go on to college and they currently take business courses both for professional preparation and for personal development. Kerka (1995) also noted that the profession remains largely female.
2. There is some discrepancy between the competencies taught and learned in business education courses. In several cases larger percentages of students reported learning a competency than the percentage of teachers who reported teaching it. In other cases the opposite is true. In 33.3 percent of the cases, the differences were statistically significant. These discrepancies might be accounted for by incidental learning on the one hand, and by the fact that learning is not always occurring when teaching is occurring. Also, on-the-job experiences can also account for students' learning some competencies that are not taught in their business education courses.
3. Critical office support skills include document processing, mail management, copying and faxing, telephone skills, written and oral communication (including proofreading), teamwork skills, and prioritizing and assigning work. To be effective, office support personnel must also be able to work with minimum supervision, monitor their own progress, maintain confidentiality of information and files, use good judgment, be accurate, follow oral and written instructions, and manage their time well. Although most postsecondary business education students are fairly well prepared for business support jobs, most secondary students will need more preparation, possibly at the postsecondary level or through on-the-job experiences. This is neither unusual nor surprising. If it were not so, to some extent, postsecondary business education would hardly be justifiable.
4. There seem to be considerable deficiencies in the preparation of high school business education students for the job market—assuming that they go directly to work in office support jobs after high school. This is particularly so in the areas of customer/human/public relations skills and in general administrative skills. High school business students are best prepared in technology (end-user computer skills). Of course, computer skills are very important for employability. Techniques (1997) listed computer fluency as one of seven employer expectations. It encouraged job seekers to gain computer knowledge and experience.

Recommendations

The study makes the following recommendations:

1. Administrators whose responsibility it is to prepare and update business education curricula should remember that most students have a dual purpose for taking business courses—Cjob preparation and personal use.
2. High school business teachers should carefully study their curricula, comparing them to the job skills that are needed for office support roles and ensure that students who plan to go directly work are provided with the necessary job skills. However, since most high school students plan to go on to postsecondary institutions, business educators at the secondary and postsecondary levels need to work to ensure curricula articulation.
3. Continued research is needed to make sure that business education curricula accurately mirror the skills that are needed in office support roles.
4. Tech Prep and School to Work initiatives that foster relationships between secondary, postsecondary education, and businesses that employ graduates should be encouraged. These relationships will help to ensure that business education programs effectively prepare workers for the job market.

Implications for Business Education

Challenges, such as those of the SCANS Report and Goals 2000, demand a response from business educators. Studies such as this one, though limited in scope, suggest that continued diligence and hard work must characterize business education programs in order to prepare workers for the 21st century. Guidelines exist in numerous occupational studies that have been done, especially in large Federally sponsored projects such as those mentioned earlier. If utilized, they can form the basis of increasingly better curricula that will support continuing efforts to educate and train high caliber business education graduates, at all levels of the education system. As the Johnson Foundation at Wingspread (1998) noted, SCANS challenges the entire education system, from pre-school through post-graduate, to prepare competent workers and good citizens.

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Workforce Skills Required by North Carolina Employers for Entry-Level Employment of High School Graduates

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Abstract

Various commissions, task forces, and other sources give schools failing marks in many areas. Of major concern is the perception that graduates are inadequately prepared to assume productive workforce roles. The purpose of this study was to determine the skills perceived as required by private-sector employers in North Carolina for entry-level employment upon completion of secondary education. Specifically, the study investigated the null hypothesis—A significant difference will not exist among North Carolina employers from each of the 100 North Carolina counties in their perceptions of the types of skills needed by North Carolina high school graduates for entry-level employment.

Introduction

School systems are increasingly pressured to address perceived deficiencies in educational quality. Demands seem to be coming from every public, including the media, business leaders, governmental agencies at all levels, and parents, among others. But one of the most insistent voices is that of business. In spite of noteworthy progress in some areas, educational institutions have been slow to address school-to-work issues. Part of the reason for delay, in spite of a fourteen-year lapse since the publication of *A Nation at Risk* (1983), is that communication has often been unclear. For instance, business round tables in North Carolina and other states, a number of blue ribbon panels, commissions, and research studies have done little to clarify the types and complexity of new workplace skills. Research studies provide vague, general descriptions of skills, with very few reaching the level of sophistication needed to provide meaningful direction for educational reform. Terminology varies from one report to another, with little consensus about definitions. Further, business leaders' expectations of schools range from providing a basic education, however "basic" may be defined, to serving as businesses' personal trainers (SCANS, 1991). Through this study the researcher attempted to clarify the message to schools by determining the expectations for entry-level employees with a secondary education as perceived by business leaders in each of North Carolina's 100 counties.

Historically, America's educational system has prepared graduates for the workforce by training them for repetitive tasks rather than tasks requiring the ability to make decisions, to be independent thinkers, and to work as part of a team. The workplace has, however, entered a new era. To succeed in the transition from old to new, educational institutions, like businesses, must adopt a new model in order to prepare young people adequately for new workplace roles. In addition to addressing issues related to the transition from school to work, educators must also examine current pedagogical practices and curricula in the light of increasing knowledge about the brain and cognition. Schools must change to address the needs of all students, to emphasize the connections between the classroom and the world outside it. Students must come to value learning and to understand its importance throughout life.

The evolving workplace is expected to have characteristics that demand notably different workforce skills from those required in traditional work settings (Bailey, 1990; Carnevale, 1991; Carnevale, Gainer, & Meltzer, 1988; Johnston & Packer, 1987; Murnane & Levy, 1996; Reich, 1991; SCANS, 1991; Texas, 1993). Researchers like Bailey, Carnevale, and Murnane and Levy documented the current existence of workplaces undergoing transformation in the process of economic evolution. Bailey commented that because the escalating pace of change in global competition and markets is likely to continue, business and industry may find itself in a constant state of change, requiring a workforce that is adaptable, flexible, and responsive. Bailey stated further that education is key to being able to cope with and respond to change, for it builds skills that promote adaptability, flexibility, and responsiveness. Thus, evolving workplaces require a well-educated workforce in order to meet the challenges confronting business and industry in a global economic environment.

Purpose of the Study

The purpose of this study was to determine the skills that the largest private-sector employers in each of the 100 North Carolina counties perceived as required for entry-level employment upon completion of secondary education. The research addressed business leaders' perceptions of cognitive and affective skills required to participate fully in a rapidly changing, global economy. The study sought to provide more specific direction to educators by clarifying workplace requirements.

The Null Hypothesis

The null hypothesis—A significant difference will not exist among North Carolina employers from each of the 100 North Carolina counties in their perceptions of the types of skills needed by North Carolina high school graduates for entry-level employment.—was investigated.

Literature Review

Group Interaction Skills

One trademark of the changing workplace is reliance upon teamwork and interaction with a wide range of people in order to perform a variety of complex tasks, as opposed to worker isolation and task differentiation of traditional settings (Bailey, 1990; Carnevale, 1991; "Interview," 1997; Murnane & Levy, 1996; Reich, 1991; SCANS, 1991). These changes require that workers at all levels possess effective group interaction skills (Bailey; Carnevale; "Interview"; Michigan Employability Skills Task Force (MESTF), 1989; Murnane & Levy; Reich; SCANS; Texas, 1993; Volk & Peel, 1997). The Volk and Peel (1997) study found that of all the skills represented, employers identified group interaction skills as the most important for high school graduates' success in the workplace. Workers must be able to work effectively as a part of multiple teams, teaching one another and performing a wide range of tasks. Team problem solving and decision making require that group members be willing to ask questions, discuss issues, and respect others' opinions. In order to interact successfully with other colleagues, supervisors, and customers, workers must also recognize diversity in the workplace, respecting differences in gender, culture, and ethnicity (Bailey; Carnevale; "Interview"; MESTF; Murnane & Levy; Reich; SCANS; Texas; Volk & Peel, 1997). Thus, the ability to work effectively in diverse groups is vitally important in the emerging workplace.

Employability Skills

As in traditional work environments, employers desire employees who possess the employability skills of maintaining quality standards and regular work habits, demonstrating punctuality and regular attendance, taking pride in work, and having a positive attitude ("Interview," 1997; MESTF, 1989; Murnane & Levy, 1996; SCANS, 1991; Stevenson & Bowers, 1986; Volk & Peel, 1997). In addition to these traditionally expected qualities, employees in evolving workplaces must possess knowledge of the company in order to perform the varied and complex tasks required (Bailey, 1990; MESTF; Murnane & Levy; Reich, 1991; SCANS; Volk & Peel, 1997). Workers must be proactive in improving organizational effectiveness and must think from a systems perspective, understanding the complex interactions among many groups, tasks, and processes in order to solve problems (MESTF; Reich; SCANS). Unlike the old factory model's isolated workers performing single, highly differentiated tasks, employees in the high-performance workplace must be able to adapt and make viable contributions to changing groups, processes, and tasks in order to be successful.

Volk and Peel (1997) also found that employers require employees to practice a healthy lifestyle. Stevenson and Bowers (1986), on the other hand, found that employers view healthy lifestyle practices to be advantageous but not required. The difference in these two findings may be a result of increasing insurance costs, workplace accidents, and loss of time associated with escalating unhealthy practices such as drug and alcohol abuse.

Personal Development Skills

Closely related to employability skills are personal development skills, referred to as personal management skills in the MESTF (1989) study. Personal development skills allow individuals to develop and demonstrate the "attitudes, behaviors and decision-making processes associated with responsibility and dependability" (MESTF, "Appendix 2," p. 1). These skills include exhibiting self-esteem, establishing personal goals, working toward advancement, recognizing career options, and desiring further education or training (Volk & Peel, 1997).

Generally, employers require that employees exhibit self-esteem, as this quality provides the foundation for maximum development of human potential (Carnevale, 1991; MESTF, 1989; Stevenson & Bowers, 1986). Self-esteem is linked to creativity, experimentation, motivation, and self-confidence (Bailey, 1990; Carnevale; Reich, 1991). Ability to establish personal goals is clearly related to self-discipline, vision development, and motivation (Carnevale; MESTF). Inextricably linked, all of these qualities are essential in evolving work environments (Carnevale; MESTF). Employees must be adaptable and flexible, capable of responding to new and changing demands (Bailey; Carnevale; MESTF; SCANS). According to Carnevale, "New standards for organizational performance, increased personal autonomy, employee responsibility beyond the formal work assignment, and the accelerating pace of change in the workplace demand a strong, positive sense of self" (p. 175). The new workplace is not for the timid. Rather, it will require individuals who possess the self-esteem and motivation to establish and work toward personal and organizational goals.

In addition to self-esteem, personal goal setting, motivation, and related skills, high school graduates entering the workforce must demonstrate skill in career development: working toward advancement, recognizing career options, and desiring further education or training (Carnevale, 1991; Volk & Peel, 1997). Individuals can no longer realistically expect to enjoy lifetime employment with the same company or in the same job (Bailey, 1990; Carnevale; Johnston & Packer, 1983; Murnane & Levy, 1996; SCANS, 1991). In order to maintain some sense of employment security, then, high school graduates must work toward advancement, recognize career options, and desire further education or training (Bailey; Carnevale; Volk & Peel, 1997). All three of these career development skills require the ability to learn continuously.

While employers' investments in employee development already exceed the costs of higher education in the United States, expenditures in education and training are expected to escalate (Bailey, 1990). Indeed, business and industry leaders are beginning to recognize that continued learning is a norm in evolving workplaces ("Interview," 1997). It is not surprising, then, that employees are expected to desire further education or training (Volk & Peel, 1997). The consensus among SCANS and post-SCANS researchers is that employees must demonstrate a willingness and ability to learn continually (Bailey; Carnevale, 1991; "Interview"; Murnane & Levy, 1996; NC Standards, 1996; SCANS, 1991; Texas, 1993; Volk & Peel, 1997). Carnevale may have summarized its importance best:

> Knowing how to learn is the most basic of all skills because it is the key that unlocks future success. . . . Once an individual learns how to learn, he or she can achieve competency in all other basic workplace skills. Learning skills are required in order to respond flexibly and quickly to technical and organizational change; to make continuous improvements in quality, efficiency, and speed; and to develop applications for existing technologies, goods, and services. (p. 165)

Shoshana Zuboff of the Harvard Business School put it this way: "[L]earning is the new form of labor" (as quoted in Fiske, 1992, p. 21). Continual learning must be a way of life for workplace success.

Critical Thinking Skills

High school graduates employed in evolving workplaces must possess the critical thinking skills necessary to engage in troubleshooting, solve problems, and make decisions (Bailey, 1990; Carnevale, 1991; "Interview," 1997; Junge et al., 1983; MESTF, 1989, Murnane & Levy, 1996; Reich, 1991; SCANS, 1991; Texas, 1993; Volk & Peel, 1997). Challenges of maintaining and responding to complex tasks and processes, in addition to interactions among diverse groups of people, necessitate creativity, skill in problem solving, ability and willingness to experiment, and openness to new ideas (Bailey; Carnevale; "Interview"; Junge et al.; MESTF; Murnane & Levy; Reich; SCANS; Texas; Volk & Peel, 1997). Critical thinking skills provide the foundation for development of these skills (Carnevale), permitting workers to "analyze, synthesize, and evaluate complexity" (SCANS, p. 17). The ability to think critically is imperative in the emerging workplace, as employees from the shop floor to the executive office are required to perform at the highest levels of intellectual development.

Leadership Skills

The evolving workplace demands front-line employees capable of leadership, demonstrating leadership qualities, negotiating and resolving conflict, and improving organizational effectiveness (Bailey, 1990; Carnevale, 1991; "Interview," 1997; MESTF, 1989; Murnane & Levy, 1996; Reich, 1991; SCANS, 1991; Volk & Peel, 1997). The team-oriented environment requires employees to be leaders as well as followers, adept in negotiation and conflict resolution. Teamwork requires sharing and acceptance of ideas as well as ability to get along with others (Bailey; Carnevale; "Interview"; MESTF; Murnane & Levy; Reich; SCANS; Volk & Peel, 1997). In addition to these interaction skills, workers must commit themselves to the larger organizational team, applying their skills to improve organizational effectiveness. Improvement of the organization is the joint responsibility of management and front-line employees, regardless of specific tasks and roles performed (Bailey; Carnevale; Reich; SCANS; Texas, 1993; Volk & Peel, 1997).

Technological Systems Skills

The SCANS (1991) document and studies by Reich (1991) and Bailey (1990) indicate that understanding of technological systems is a required competency for high school graduates. These employees, like others, must understand the relationships between various technologies and technological functions, including their impact on organizational structure and production, in order to troubleshoot, maintain, and improve production processes (Bailey; Reich). In contrast to these findings, the Volk and Peel (1997) study revealed that North Carolina manufacturers with 500 or more employees do not share these perceptions regarding technological systems. However, employees are expected to be skilled in selecting the proper tools and equipment for a task and following written directions for assembling equipment (MESTF, 1989; SCANS; Stevenson & Bowers, 1986; Volk & Peel, 1997). This apparent contradiction can be explained by the evolving nature of the workplace. As competition increases and American businesses are forced to restructure in order to survive, a systems perspective is likely to be a necessity for workplace success (Bailey; Reich; SCANS).

Basic Skills of Reading, Writing, and Mathematics

All reviewed literature underscores the importance of basic skills in reading, writing, and mathematics for high school graduates entering the workforce (Bailey, 1990; Carnevale, 1991; "Interview," 1997; Junge et al., 1983; MESTF, 1989; Murnane & Levy, 1996; Reich, 1991; SCANS, 1991; Stevenson & Bowers, 1986; Texas, 1993; Vasu & Frazier, 1989; Volk & Peel, 1997). While perceptions concerning the level of required skills vary, the general consensus is that skill levels must be significantly higher than those possessed by current high school graduates.

While researchers agree on the importance of reading skills (Bailey, 1990; Carnevale, 1991; "Interview," 1997; Junge et al., 1983; MESTF, 1989; Murnane & Levy, 1996; Reich, 1991; SCANS, 1991; Stevenson & Bowers, 1986; Texas, 1993; Volk & Peel, 1997), there is less comment on what is deemed proficient for workplace competence. Murnane and Levy, for instance, stress that employees must read at the ninth-grade or higher level in order to perform successfully. Yet the MESTF study indicates that employers' responses to "discrete academic skills tended to reflect the specialized needs of different types of industries" (MESTF, "Appendix 2," p. 2). While Bailey concurs that reading is important, there is no comment on the sophistication of reading skills required for workplace competence. The SCANS document and the Volk and Peel (1997) study, however, provide more direction. According to Volk and Peel (1997), high school graduates entering the workforce must understand words that are commonly used in business, read materials written at the level of a local newspaper, and read instruments and technical manuals. SCANS specifies that employees must be able to read and "interpret diagrams, directories, correspondence, manuals, records, charts, graphs, tables, and specifications" (p. xvi). Generally, they must be able to "read a diverse set of materials" in order to "locate the descriptive and quantitative information needed to make decisions or to recommend courses of action" (SCANS, p. xvi). This assessment corresponds to business and industry representatives' recent comments that employees must be able to read for information ("Interview") and to Carnevale's research on required reading skills.

The literature indicates that basic writing skills are also important for workplace success (Bailey, 1990; Carnevale, 1991; "Interview," 1997; Junge et al., 1983; MESTF, 1989; Murnane & Levy, 1996; Reich, 1991; SCANS, 1991; Stevenson & Bowers, 1986; Texas, 1993; Volk & Peel, 1997), yet there is little direction concerning specific writing skills required. Stevenson and Bowers state that writing is important, but "only to the extent and in the form required for the job" (p. 4). Similar to that assessment, the Volk and Peel (1997) study indicates that employees must be able to write simple memoranda. SCANS, however, states that ". . . most jobs will call for writing skills to prepare correspondence, instructions, charts, graphs, and proposals, in order to make requests, explain, illustrate, and convince" (p. xvi). Depending on one's interpretation of these specifics, high school graduates could be expected to possess higher skill levels than those required to write simple memoranda.

Basic mathematics skills are deemed important in the literature reviewed (Bailey, 1990; Carnevale, 1991; "Interview," 1997; Junge et al., 1983; MESTF, 1989; Murnane & Levy, 1996; Reich, 1991; SCANS, 1991; Stevenson & Bowers, 1986; Texas, 1993; Volk & Peel, 1997); yet, again, lack of agreement results in little direction for educators preparing youth for the workplace. For instance, Murnane and Levy state simply that employees must perform mathematical functions at the ninth-grade or higher level. Reflecting a similar skill level, the Volk and Peel (1997) study indicates that high school graduates must be proficient in adding, subtracting, multiplying and dividing, while Junge et al. add that employees must be able to perform these computations using fractions and decimals as well as whole numbers. While mastery of neither algebra nor geometry is deemed required according to Volk and Peel (1997), there is some indication an understanding of elementary statistics is highly desired. The North Carolina Standards and Accountability Commission (1996) indicates in a recent descriptive study, however, that algebra is, indeed, essential for workplace success. Additionally, Carnevale states that employees in evolving work settings must be skilled in quantification, computation, measurement and estimation, quantitative comprehension, and quantitative problem solving. Addressing application of mathematics skills in evolving workplaces, SCANS states that "virtually all employees will be required to maintain records, estimate results, use spreadsheets, or apply statistical process controls as they negotiate, identify trends, or suggest new courses of action" (p. xvi). Stevenson and Bowers, however, comment that employees should be skilled in addition, subtraction, division, fractions, and percentages "to the extent and in the form that they are used on the job" (p. 8). While there is some disagreement about the level of mathematics skills required for successful employment, one certainty remains: Mathematics will not be abandoned at the schoolhouse door. High school graduates entering the workforce must be skilled in the application of mathematics in order to function successfully on the job.

With emphasis on team problem solving and interaction in evolving workplaces, the communication skills of speaking and listening are required of high school graduates entering the workforce (Bailey, 1990; Carnevale, 1991; "Interview," 1997; Junge et al., 1983; MESTF, 1989; Murnane & Levy, 1996; Reich, 1991; SCANS, 1991; Stevenson & Bowers, 1986; Texas, 1993; Volk & Peel, 1997). Employees must be able to follow oral instructions; listen to formal presentations; and listen actively to team members, supervisors, and other colleagues. An additional requirement, especially in the service sector, is the ability to listen actively and speak clearly to customers (Bailey; Carnevale; "Interview"; Junge et al; MESTF; Murnane & Levy; Reich; SCANS; Stevenson & Bowers; Texas; Volk & Peel, 1997). Perhaps more than ever, employees in all capacities must demonstrate effective communication skills.

Computer Skills

While some research (Junge et al., 1983; Murnane & Levy, 1997; SCANS, 1991) indicates that computer skills are required for success of high school graduates entering the workforce, there is relatively little consensus regarding the sophistication or, indeed, the necessity of possessing those skills. Volk and Peel (1997), for instance, found that employers require simple keyboarding skills while Junge et al. discovered a desire for employees who have a basic understanding of computer operations. Employers' responses in the Stevenson and Bowers (1986) study, on the other hand, revealed that computer literacy skills were either not required or training would be provided. It is likely, nonetheless, that requirements for higher level computer skills do exist, since some literature (Bailey, 1990; "Interview," 1997;

Reich, 1991) refers to the necessity of technological skills and technical knowledge without specifying what they entail.

Work Education and Democracy

Even as federal and state legislation charges schools with the responsibility of preparing the workforce of the future, scholars like Apple (1982, 1990), Kincheloe (1995), Macedo (1994), and Shor (1986) argue that work training for business is not a mission of educational institutions in a democratic nation. On the contrary, training which serves to maintain the status quo in work organizations, stripping workers of their dignity and work of its meaning, is antithetical to the development of a democratic workforce (Apple; Kincheloe; Macedo; Shor). These scholars maintain that teaching work skills for repetitive tasks and/or for entry-level employment at the bottom rung of the workforce ladder is designed to mold workers into willing participants in their own enslavement by business, whose only concern is profit-seeking. Such training prevents worker empowerment, reinforces unequal distribution of wealth and class distinctions, and promotes oppression based on race and gender (Apple; Kincheloe; Macedo; Shor).

The concept of a good education should include workforce education, as opposed to work training, as both desirable and essential if workplaces are to be transformed into democratic learning communities (Kincheloe, 1995). Kincheloe rejects work training, designed to require little thinking, as its purpose is to "adjust students to their future roles as docile workers" (p. 23). Interestingly, the skills described by Apple (1982, 1990), Kincheloe, Macedo (1994), and Shor (1986) do not run counter to those described in the literature on the high-performance workplace and workforce reviewed in this study. What, then, constitutes the major argument from these representative scholars against business interests guiding school reform? The real issue is not whether workforce skills are taught, but the aims of workforce education—the long-term goals which continue to affect individuals far beyond the time of formal schooling. Those goals must be transformative, rather than regulatory: must assure the development of independent and critically analytical thought, creativity, and a desire for continuous learning and self-development. Transformative goals should also include empowerment of every individual to assure equality in the workplace, including equalization of power; commitment to improvement of the quality of life for all individuals, regardless of race, gender or other differences; and commitment to restoring true democracy in all aspects of American life (Apple; Kincheloe; Macedo; Shor).

Kincheloe (1995) argues that work education is essential to democratizing the workplace. To promote democratization, schools must avoid manipulation by business. Curricula should, indeed, include development of skills necessary for successful participation in the workplace, but successful participation must be defined in terms of transformative participation that promotes the realization of workers' full human potential. Educators must assure that all aspects of work life are explored, including the subservience of workers to the profit margin. Youth must learn to assess workplace dynamics independently and with the understanding that they can change the status quo of worker oppression.

Kincheloe (1995) comments further that school-to-work initiatives, such as apprenticeships and internships, are invaluable in work education programs. Yet involvement in such initiatives are worthwhile only if they are accompanied by school-level teaching which promotes critically analytical thought about workplace dynamics. Again, the issue is not whether work education is desirable, but whether its real goals are transformative and democratic. The dialogue about work education should be broadened to include transformation of the workplace into a learning organization and the preparation of youth to assume an empowered, valued and valuable role in the world of work as it can become, not as it currently is. Because the aims of education must extend beyond workforce preparation, business leaders must not be allowed to dictate educational policy within the narrow objectives of increased production and higher profit margins.

Implications

Almost daily, voices of criticism explicate a long and growing list of dissatisfactions with the current American educational system. Numerous national and state commissions; local, state, and national government leaders; business and industry leaders; the media; and other groups demand education reform. Among the loudest voices are those of business and industry, and the commissions and other groups representing the economic sector. These groups demand greater emphasis on workforce development in schools, especially as it relates to twenty-first century economic developments. Government has responded to these voices by adopting several strategies, one of which is school-to-work legislation. But lack of consensus in the empirical literature, relative to skills required for success of high school graduates in entry-level positions, provides the education community little direction for development of curricula, instructional strategies, and assessments. Added to the lack of consensus about what workforce skills are essential, and whether they are already being taught, is the ideological/philosophical debate about the purposes of schools and schooling. Furthermore, this debate appears nowhere near a resolution of the issues. But what is clear is that the American economy is in a state of flux, and educational institutions will be held accountable for assuming a viable role in assuring successful change.

Examination of the literature, especially empirical works, provided little direction for educational leaders seeking to address work education issues. No clear consensus could be established in support of specific skills essential for workplace success. Similarly, no agreement emerged to resolve questions relative to the sophistication of skills required or the definition of competency. The review of literature revealed a growing and passionate dialogue concerning the aims of education and whether business involvement in educational decision making is wise or appropriate. The lack of consensus concerning specific work skills required for work readiness and the debate regarding business' involvement in educational policy making emphasize the need for additional research.

Research Methodology and Design

Survey research methodology was used to test the null hypothesis. Dillman (1978) stated that survey research methodology should be used when dealing with quantitative data, controlling costs of conducting research, and including a large portion of the population in the sample size. Therefore, survey research was appropriate as the research involved collecting and testing quantitative data from all participating North Carolina employers. A mail survey format was used to collect data for this study. According to Kerlinger (1986), surveys may be used to study "large and small populations . . . by selecting and studying samples chosen from the populations to discover the relative incidence, distribution, and interrelations of sociological and psychological variables" (p. 377). The mail questionnaire format selected for this study ties to Kerlinger's pattern by enabling the researcher to collect data from a relatively large sample of North Carolina employers more efficiently than would be possible through other means.

Population

The population included all types of private-sector businesses operating in North Carolina. The North Carolina Employment Security Commission's on-line Labor Market Information services (available at http://www.esc.state.nc.us/lmi/largest/topten) for the last quarter of 1996 identified the largest private-sector employers by county in North Carolina. Since the Employment Security Commission released only private-sector information, some of the listings excluded employers who were, in actuality, among the largest within each county. For example, public universities and government installations, which would be the largest or among the largest of employers, were not included in the information received from the Employment Security Commission.

Instrumentation

The data collection instrument consisted of a cover letter and survey questionnaire which were mailed to contacts for the largest employers identified through the Employment Security Commission's on-line Labor Market Information services. The instrument design was based upon Volk & Peel's (1994) *Basic Academic and Vocational Skills Required of Employees with Only a High School Diploma*. While a limitation of that instrument is that neither validity nor reliability data were reported, both reliability and validity were addressed in the methodology for this study, culminating in the instrument *Inventory of Workforce Skills Needed by High School Graduates* (IWSNBHSG), developed by Peel, Joyner, & Volk (1997). The IWSNBHSG was administered to 50 individuals enrolled in two workforce development education-related courses at East Carolina University in Greenville, North Carolina. The results were collected and analyzed using Cronbach's Alpha to determine reliability. The Cronbach's Alpha for the pilot was a = .92, indicating a moderately high reliability. According to Cronbach (1951), coefficients above 0.6 are desirable and values above 0.8 are needed for a developed scale. Therefore, the coefficient generated for the IWSNBHSG, .92, is above the value needed for a developed scale. To establish validity of the IWSNBHSG, a panel of five experts reviewed the instrument. Reviewers were familiar with either workplace skills or survey research. Panel members were asked to indicate whether each item on the instrument was valid for measuring the requirement or non-requirement of a skill. Because the 1994 Volk & Peel (1997) study sought responses from manufacturing firms only with 500 or more employees, the present study required that the instrument be adapted to accommodate a broader range of businesses. Thus, the wording of demographic items reflected the expanded emphasis. Demographic information allowed classification by type and size of business. Because a broader range of businesses was surveyed, the demographic section of the instrument was revised to be appropriate for all types of businesses participating in the study. Further, information was requested concerning (a) the type of industry, (b) the individual completing the instrument, and (c) a daytime phone number in case additional information was needed.

Data Collection Process

Retaining the original Volk & Peel (1994) descriptors, the IWSNBHSG collected data related to respondents' opinions regarding the extent to which skills were required of a high school graduate upon initial employment. The survey (Peel, Joyner, & Volk, 1997) addressed the following skill areas: (a) reading, writing, and math skills; (b) communication skills; (c) critical thinking skills; (d) group interaction skills; (e) personal development skills; (f) computer skills; (g) leadership skills; (h) employability skills; and (i) technological systems skills. Respondents were instructed to place a check in the box to indicate if the skill was required for initial employment of high school graduates. Based on the criticism of the Volk and Peel (1997) study of a relatively small number of participating businesses, a broader participant base was sought for this study. The researcher had two goals: (a) to obtain responses from every North Carolina county and (b) to obtain an acceptable return rate. Survey instruments were mailed first class to individuals specified by the Employment Security Commission as business/industry contacts for the top 10 employers in each of North Carolina's 100 counties. Because some counties had fewer than 10 businesses, 792 businesses were identified. To ensure participation from representatives in every North Carolina county, the package mailed to business/industry contacts included a stamped, self-addressed envelope and a cover letter encouraging completion of the survey. Further, to provide an incentive for participation, the cover letter advised recipients that a copy of the study results may be obtained by including the comment *summary requested* and their name and address on page 6 of the instrument.

Questionnaires were mailed to each of the human resource management officers of 792 North Carolina firms. The first and second mailings resulted in a 12% return rate, with 62% (62 counties) of the counties represented. Because of the low rate of return, the researcher focused on the goal of achieving representation from every county. From the 92 usable responses received from the first two mailings, the researcher determined that the number of responses received per county ranged from one to four, with a mode of one. Based on a mode of one, with the goal of representation from each of the 100 counties in North Carolina, the probable response rate was one usable instrument per North Carolina county. A stratified sampling technique was then employed to obtain a representative sample based on the three geographical regions—Mountain, Piedmont, and Coastal—of North Carolina. Information presented in Table 1 describes the number of counties per North Carolina geographical region, the number of employers per North Carolina geographical region based upon the *1997 North Carolina Manufacturers Directory*, the percentage of employers per North Carolina geographical region, the number of responses per geographical region, and percentage of responses per North Carolina geographical regional.

Table 1
Stratified Sample of Businesses by NC Geographical Regions

NC Region	Counties	Total Employers	% of NC employers	Responses	% responding
Coastal	32	3331	32	32	30
Piedmont	33	2602	25	27	26
Mountain	35	2602	25	27	26
Total	100	10409	100	105	100

Note. N = 105

Approximately two weeks after the second mailing, one business that had not responded to the survey was contacted from each county that had not returned an instrument. Twenty-five additional businesses that had not previously responded were contacted via facsimile. Fifteen of those 25 businesses responded, and all of those instruments were usable. The results of the three attempts to collect data generated 105 businesses responding from within 72 of the 100 counties—a 72% county response rate. This return rate is considered acceptable because the return rate compares favorably with other studies of this type. For instance, in two surveys of oil-related manufacturing businesses in the Midland area of Texas conducted by Midland College and the Midland Chamber of Commerce (McCarty, 1990), the return rates were 35% and 30.2%, respectively.

Each instrument was coded using a six-digit number to identify the county, the type of business/industry, and the actual firm receiving the survey. This information enabled the researcher to determine the status of survey instruments as well as to assure participation from every county. The data collection procedures used for assembling and mailing questionnaires and appropriate follow-up mailings were modeled after the procedures advocated by Dillman (1978).

Data Analysis and Recording

Representatives from employers in each of North Carolina's 100 counties were requested to indicate if certain workforce skills were required for initial employment of high school graduates. To test the null hypothesis—A significant difference will not exist among North Carolina employers from each of the 100 North Carolina counties in their perceptions of the types of skills needed by North Carolina high school graduates for entry-level employment—the Chi Square Test of Independence was applied to the data collected. According to Hinkle, Wiersma, and Jurs (1979), the chi square statistic is frequently used to compare two or more groups on a nominal or categorical variable with two or more categories. The dependent variable was the workforce skill, while the independent variables were two points of the workforce skill, *required* or *not required*. The Chi Square Test of Independence was used to ascertain the probability of observed differences among employers regarding the *required* or *non-required* status of a workforce skill.

Methodological Assumptions

The assumptions for using the chi square statistic must be met if resulting inferences are to be valid. Those assumptions, stated in Ary, Jacobs and Rezavieh (1985), include the following:

1. Categories will be mutually exclusive; each response will appear in only one of the categories in a table.
2. The responses will be measured as frequencies.
3. The expected frequency in any cell will be at least 5 when the degrees of freedom equal one, and not less than 5 in 80% of the cells when the degrees of freedom are more than one.
4. The observed values with one degree of freedom will be corrected for continuity to use the table of critical values of chi square.
5. The responses will be independent of one another.
6. The method used for sampling the population will be a representative sample.

Demographics

Representatives of 105 participating businesses from within 72 North Carolina counties returned usable questionnaires, representing an overall county response rate of 72%. These businesses were categorized by North Carolina geographical regions: the Coastal, Piedmont, and Mountain regions. Of the 105 respondents, 30% were located in the Coastal Region, 44% in the Piedmont Region, and 26% in the Mountain Region. In the Demographics section of the questionnaire, respondents were asked to describe their company's industry type. Based on this self-report, 17 types of businesses were identified. Approximately 46% of respondents identified their business as textiles or manufacturing, with almost 70% describing their companies in terms of manufacturing. In addition, more than half the businesses employed 500 or fewer employees.

Report and Analysis of Data

Response choices were treated as nominal data. Work skill statements were grouped into categories of skills. Participants were instructed to "check *required* if the skill is needed by a high school graduate to be employed by this company" and to "check *not required* if the skill is not required for a high school graduate to be employed by this company." The number and percentage of *required* or *not required* responses were calculated, representing the difference between actual and expected responses concerning skills *required* or *not required* of recent high school graduates at the time of initial employment.

Summary of Findings

The researcher examined the null hypothesis—A significant difference will not exist among North Carolina employers from each of the 100 North Carolina counties in their perceptions of the types of skills needed by North Carolina high school graduates for entry-level employment. Significant differences were found to exist among North Carolina employers in their perceptions of the types of skills required for work readiness. Therefore, the null hypothesis was rejected. The findings are discussed according to response categories in the IWSNBHSG.

Reading, Writing, and Math Skills

Business leaders indicated that only 25% of the competencies included in the reading, writing, and math skills category are required of high school graduates for employment. Responses in this category, summarized in Table 2, suggest that the workplaces represented in this study do not require higher-level academic skills, as those that were generally marked as required were among the lower competencies in the category. For example, participants indicated that high school graduates are required to have the basic skills sufficient to understand common job-related words, read instruments such as gauges and meters, and perform simple mathematical functions (addition, subtraction, multiplication, and division). Reading and writing skills, even at the relatively low competency levels of reading the local newspaper and writing simple memoranda, respectively, were not supported as required skills at the .05 level of significance. Furthermore, participants specified that higher-level competencies are not required, including the more advanced skills of reading technical manuals and blueprints and writing technical reports. Generally, participants discounted the importance of basic reading and writing skills, a finding that contradicts the literature. No single skill requiring reading comprehension was deemed required for entry-level employment of secondary school graduates, including the skills to read technical manuals and material written at the level of the local newspaper. The Volk and Peel (1997) study, on the other hand, found that these two skills were required of graduates by employers. Furthermore, Volk and Peel also found that employers required the skills to write simple memoranda, unlike the findings for this study.

Similarly, responses for mathematics competencies, summarized in Table 2, indicated a lack of support for math competence above the simple mathematical functions of addition, subtraction, multiplication, and division. Business representatives specified that high school graduates are not required to have the basic skills sufficient to perform algebraic equations; understand geometric principles and elementary statistics; and estimate time, weight, and speed measurements. These findings do little to clarify the mathematics skills required for employment of high school graduates. While the findings are generally supported by the Volk and Peel (1997) study, the earlier work also found some support for understanding elementary statistics, unlike the current study. Junge et al. (1983) and Stevenson and Bowers (1986) investigated different variations of the simple mathematical functions, making comparison difficult. For instance, Junge et al. specified that employees must be able to perform the functions of adding, subtracting, multiplying, and dividing using fractions and decimals as well as whole numbers. Additionally, other researchers (Carnevale, 1991; Reich, 1991; SCANS, 1991) stated that sophisticated mathematics skills above the level of simple functions (addition, subtraction, multiplication, and division), including algebra (NC Standards, 1996), are required in evolving workplaces. Business continued to communicate conflicting messages concerning the reading, writing, and mathematics skills required for high school graduates to be work ready.

Table 2
Reading, Writing, and Math Skills: Responses to Skill Statements and the Computed Chi Square Probability for Required/ Not Required (RNR)

Skill	R•	NR•	Probability RNR
2.1.1	33.3	66.7	.000572529*
2.1.2	21.9	78.1	8.5212E-09*
2.1.3	54.3	45.7	.379775477
2.1.4	86.7	13.3	5.71592E-14*
2.1.5	67.6	32.4	.000305218*
2.1.6	50.5	49.5	.92225786
2.1.7	8.6	91.4	2.0605E-17*
2.1.8	81.0	19.0	2.24821E-10*
2.1.9	9.5	90.5	1.08448E-16*
2.1.10	12.4	87.6	1.26202E-14*
2.1.11	30.5	69.5	6.30246E-05*
2.1.12	39.0	61.0	.024795744*

Note. N = 105. • = Responses expressed as percentages. *$p < .05$.

Communication Skills

Business representatives indicated that high school-graduated employees are required to have the communication skills necessary to give clear directions, speak in clear sentences, listen to formal presentations, and follow procedural instructions. Graduates are not, however, required to understand and/or speak another language. These findings, presented in Table 3, are consistent with the literature. Generally, entry-level employees with a high school diploma must demonstrate competence in the communication skills of speaking and listening. They must be able to follow oral instructions; listen to formal presentations for information; and listen actively to colleagues, supervisors, team members, customers, and suppliers (Bailey, 1990; Carnevale, 1991; "Interview," 1997; Junge et al., 1983; MESTF, 1989; Murnane & Levy, 1996; Reich, 1991; SCANS, 1991; Stevenson & Bowers, 1986; Texas, 1993; Volk & Peel, 1997). Because speaking and listening skills are consistently judged important for workplace success, educators can feel confident that these skills are important for work readiness.

Table 3
Communication Skills: Responses to Skill Statements and the Computed Chi Square Probability for Required/Not Required (RNR)

Skill	R•	NR•	Probability RNR
2.2.1	74.3	25.7	6.45472E-07*
2.2.2	90.5	9.5	1.08448E-16*
2.2.3	72.4	27.6	4.50242E-06*
2.2.4	82.9	17.1	1.6539E-11*
2.2.5	2.9	97.1	4.39766E-22*

Note. N = 105.
• = Responses expressed as percentages.
*p < .05.

Critical Thinking Skills

Like communication skills, critical thinking skills were deemed important for entry-level employment. Participants indicated that the high school graduates they employ must be able to troubleshoot problems, understand problem-solving processes, and make decisions independently. Summarized in Table 4, these findings are also reflected in the literature that addressed thinking skills (Bailey, 1990; Carnevale, 1991; "Interview," 1997; Junge et al., 1983; Kincheloe, 1995; MESTF, 1989; Murnane & Levy, 1996; Reich, 1991; SCANS, 1991; Texas, 1993; Volk & Peel, 1997). Unlike business representatives' responses to reading, writing, and math skills, the critical thinking skills required of high school graduates suggest a sophisticated level of skill development. The most sophisticated critical thinking skill, however, is the ability to formulate hypotheses. This skill, like others at the higher end of the academic skills hierarchy, was specified as not required. While Volk and Peel (1997) also found that employers did not require high school-graduated employees to be able to formulate hypotheses, other researchers indicated that employees in the evolving workplace must be creative and able and willing to experiment (Bailey; Carnevale; "Interview"; Junge et al.; MESTF; Murnane & Levy; Reich; SCANS; Texas). These skills suggest that one has the ability to hypothesize informally if not formally. The consistency of support throughout the critical thinking literature for skills to troubleshoot problems, engage in problem solving, and make effective decisions justifies educators' confidence that these are viable work-ready skills.

Table 4
Critical Thinking Skills: Responses to Skill Statements and the Computed Chi Square Probability for Required/Not Required (RNR)

Skill	R•	NR•	Probability RNR
2.3.1	22.9	77.1	2.65738E-08*
2.3.2	65.7	34.3	.001279805*
2.3.3	69.5	30.5	6.30246E-05*
2.3.4	65.7	34.3	.001279805*

Note. N = 105.
• = Responses expressed as percentages.
*p < .05.

Group Interaction Skills

Receiving total support from business representatives, each competency in the category of group interaction skills was specified as required of high school graduates for entry-level employment. As presented in Table 5, participants indicated that upon entering the workforce, graduates must be able to interact effectively with a diverse workforce. Entry-level employees must possess the skills to interact effectively as a member of multiple teams, participate in group discussions, respect others' opinions, and ask clear questions in order to solve problems and perform complex tasks. Business representatives' overwhelming endorsement of group interaction skills is consistent with the literature that addresses the evolving workplace (Bailey, 1990; Carnevale, 1991; "Interview," 1997; Junge et al., 1983; Kincheloe, 1995; MESTF, 1989; Murnane & Levy, 1996; Reich, 1991; SCANS, 1991; Texas, 1993; Volk & Peel, 1997). Because the messages from this study and the literature reviewed consistently and clearly support the importance of group interaction skills for work readiness, educators may have clear direction for change.

Personal Development Skills

As summarized in Table 6, business representatives indicated that high school graduates employed in entry-level positions must exhibit self-esteem. While the literature supports the finding that self-esteem is important (Bailey, 1990; Carnevale, 1991; Kincheloe, 1995; MESTF, 1989; Reich, 1991; Stevenson & Bowers, 1986; Volk & Peel, 1997), the literature reviewed goes far beyond this one skill to include all the personal development skills addressed in the study. Participants could not agree on the

Table 5
Group Interaction Skills: Responses to Skill Statements and the Computed Chi Square Probability for Required/Not Required (RNR)

Skill	R*	NR*	Probability RNR
2.4.1	90.5	9.5	1.08448E-16*
2.4.2	92.4	7.6	3.77045E-18*
2.4.3	91.4	8.6	2.0605E-17*
2.4.4	81.0	19.0	2.24821E-10*
2.4.5	86.7	13.3	5.71592E-14*
2.4.6	76.2	23.8	7.98575E-08*
2.4.7	99.0	1.0	9.02313E-24*
2.4.8	93.3	6.7	6.64465E-19*

Note. N = 105.
* = Responses expressed as percentages.
*p < .05.

importance of the remaining skills: establishing personal goals, working toward advancement, recognizing career options, or desiring further education or training. Bailey, Carnevale, and Volk and Peel (1997), however, underscored the importance of working toward advancement, recognizing career options, and desiring further education or training in order to enjoy some sense of employment security in the rapidly and constantly changing environment of high-performance workplaces. These skills are required if employees are to continue learning throughout their careers. Since continued learning was recognized in the reviewed literature as a hallmark of the evolving workplace, researchers emphasized the personal development skills required to continue the learning process throughout life (Bailey; Carnevale; "Interview," 1997; Kincheloe; MESTF; Murnane & Levy, 1996; Reich; SCANS, 1991; Stevenson & Bowers; Volk & Peel, 1997). The findings of the current study, then, do little to clarify the personal development skills required for high school graduates to be work ready, leaving educators with little direction in this area.

Table 6
Personal Development Skills: Responses to Skill Statements and the Computed Chi Square Probability for Required/Not Required (RNR)

Skill	R*	NR*	Probability RNR
2.5.1	67.6	32.4	.000305218*
2.5.2	59.0	41.0	.063709115
2.5.3	55.2	44.8	.28305151
2.5.4	47.6	52.4	.625585232
2.5.5	46.7	53.3	.494524669

Note. N = 105.
* = Responses expressed as percentages.
*p < .05.

Computer Skills

Participants indicated that computer skills, generally, are not required of high school graduates hired in entry-level positions, as summarized in Table 7. Business representatives qualified that specific software applications, including database, spreadsheet, and word processing applications, are not required. The only computer skill on which business representatives could not agree was the basic skill of operating a computer keyboard. These findings are consistent with the mixed findings in the literature. While Volk and Peel (1997) found that employers required basic keyboarding skills, Stevenson and Bowers (1986) discovered the opposite—that computer literacy skills were not required for initial employment. Junge et al (1983), on the other hand, found that employees must possess a basic understanding of computer operations, however *basic understanding* is defined. Although these empirical studies indicate a lack of consensus among employers, Bailey (1990), SCANS (1991), and Murnane and Levy (1997) indicated that computer skills are, indeed, required for success in the evolving workplace. In addition, the arguments of Bailey, SCANS, and Murnane and Levy regarding the centrality of rapidly developing technology in high-performance environments strengthen the argument for computer skills competency. When these arguments are considered, educators have no clear direction for change. And while the findings of this study clearly do not support computer skills as important for work readiness, the strength and clarity of arguments in the literature supporting computer skills still remain. Once again, business provided no clear indication about work-ready computer skills.

Table 7
Computer Skills: Responses to Skill Statements and the Computed Chi Square Probability for Required/Not Required (RNR)

Skill	R*	NR*	Probability RNR
2.6.1	47.6	52.4	.625585232
2.6.2	32.4	67.6	.000305218*
2.6.3	15.2	84.8	1.04785E-12*
2.6.4	12.4	87.6	1.26202E-14*
2.6.5	6.7	93.3	6.64465E-19*
2.6.6	13.3	86.7	5.71592E-14*
2.6.7	10.5	89.5	5.49725E-16*
2.6.8	3.8	96.2	2.90124E-21*
2.6.9	24.8	75.2	2.31267E-07*

Note. N = 105.
* = Responses expressed as percentages.
*p < .05.

Leadership Skills

Business representatives agreed on only two of the four leadership skills included in the survey. As summarized in Table 8, responses indicated that graduates are not required to demonstrate leadership qualities or to motivate others. Participants could not agree on the importance of improving organizational effectiveness and negotiating and resolving conflicts. Generally, leadership skills were not deemed important for employment in entry-level positions, a finding that completely contradicts the literature that discusses the evolving workplace. Bailey (1990), Carnevale (1991), "Interview" (1997), MESTF (1989), Murnane and Levy (1996), Reich (1991), SCANS (1991), and Volk and Peel (1997) emphasized that leadership skills are critical to success in work environments characterized by multiple work teams, diversity, interdependence of workers and work tasks, flexible work roles, and continuous learning. In such an environment everyone is mutually responsible for organizational effectiveness; everyone is required to take a leadership role. Not only does the work skills literature emphasize the importance of leadership skills; but Apple (1982), Kincheloe (1995), and Macedo (1994) underscore that one hallmark of work in a democratic workplace is the elevation of workers to the status of leaders, sharing power with managers. Employers continued to send contradictory messages about the skills required for high school graduates to be work ready.

Table 8

Leadership Skills: Responses to Skill Statements and the Computed Chi Square Probability for Required/Not Required (RNR)

Skill	R[a]	NR[a]	Probability RNR
2.7.1	38.1	61.9	.014697422*
2.7.2	48.6	51.4	.769697944
2.7.3	37.1	62.9	.008415459*
2.7.4	58.1	41.9	.09710975

Note. N = 105.
[a] = Responses expressed as percentages.
*p < .05.

Employability Skills

Business representatives indicated that high school graduates entering the workforce are required to demonstrate employability skills such as punctuality, regular work habits, quality standards, and pride in work. Information presented in Table 9 summarizes participants' responses. The importance of these traditional expectations in the evolving workplace was also documented in the major works reviewed for this study ("Interview," 1997, MESTF, 1989; Murnane & Levy, 1996; SCANS, 1991; Stevenson & Bowers, 1986; Volk & Peel, 1997). Contrary to the literature, however, participants could not agree on the importance of having knowledge of the company. The works of Bailey (1990), MESTF, Murnane and Levy, Reich (1991), SCANS, and Volk and Peel (1997) emphasized the necessity of knowledge of the company to enable employees to work on multiple teams, troubleshoot problems, develop and implement creative ideas, and understand the systems nature of their work. High school graduates in entry-level positions do not need to have knowledge of the company. Findings of this study continued to underscore the importance of traditional skills and attitudes valued by employers. Yet one of the skills identified as essential for success in evolving workplaces—knowledge of the company—was not indicated as a requirement for entry-level employment. While the message is clear and consistent that punctuality, regular work habits, quality standards, and pride in work continue to be required in the workplace, employers continued to communicate contradictory expectations regarding knowledge of the company.

Table 9

Employability Skills: Responses to Skill Statements and the Computed Chi Square Probability for Required/Not Required (RNR)

Skill	R[a]	NR[a]	Probability RNR
2.8.1	95.2	4.8	1.84321E-20*
2.8.2	96.2	3.8	2.90124E-21*
2.8.3	58.1	41.9	.09710975
2.8.4	17.1	82.9	1.6539E-11*
2.8.5	94.3	5.7	1.12772E-19*
2.8.6	59.0	41.0	.063709115
2.8.7	95.2	4.8	1.84321E-20*

Note. N = 105.
[a] = Responses expressed as percentages.
*p < .05.

Technological Systems Skills

Participants' responses to the three competencies specified as technological systems skills indicated that only elementary interaction with technological systems is required of high school graduates entering the workforce. Information presented in Table 10 indicates that, generally, high school-graduated employees should be competent enough to match the proper tools or equipment to the task at hand. While business representatives could not agree on the importance of skills sufficient to assemble equipment following written directions, they did agree that calibrating equipment was not important for entry-level employment. Volk and Peel (1997) also found that employers required secondary school graduates to possess the skills to select the proper tools or equipment for a task, but they also found that employers required these employees to follow written directions for assembling equipment, a skill not supported in the present study. Business failed to clarify the technological systems skills required for high school graduates to be work ready.

Table 10

Technological Systems Skills: Responses to Skill Statements and the Computed Chi Square Probability for Required/Not Required (RNR)

Skill	R[a]	NR[a]	Probability RNR
2.9.1	80.0	20.0	7.83818E-10*
2.9.2	20.0	80.0	7.83818E-10*
2.9.3	47.6	52.4	.625585232

Note. N = 105. [a] = Responses expressed as percentages. *p < .05.

Summary and Discussion

While the literature on the evolving workplace indicated that sophisticated skills are required for all employees in the high-performance work arena, responses from businesses did not reflect a need for high school graduates to possess high-level competencies for entry-level employment. On the contrary, businesses indicated a need for academic skills somewhat below the level required by the *North Carolina Standard Course of Study* for the eighth grade. Respondents indicated a need for simple mathematical skills (adding, subtracting, multiplying, and dividing), the ability to understand job-related words, and the ability to read instruments such as gauges and meters. Further, they indicated no need for computer skills, reading comprehension skills, or writing skills. The academic skills, including computer competencies, supported by respondents are not illustrative of high-level, sophisticated skills described in the literature on high-performance organizations.

Implications

Based upon the findings and conclusions of this study, three implications are offered. The implications are derived not only from the findings but from the reviewed literature as well.

First, schools need to produce graduates with beginning or elementary levels of academic competency in reading, writing, and mathematics. While the literature on the evolving workplace emphasizes high-level skills, the findings of this study do not reflect a need for high academic competency in reading, writing, or mathematics. Educators, however, are cautioned about making generalities based upon this study. Regardless of whether employers specify a need for high-level skills, economic forecasts indicate that high-level skills will be the norm in businesses that survive the economic evolutionary process. The National Center for Education and the Economy (1991) indicates, also, that jobs paying high wages will require high skills. Perhaps most importantly, students will need high skill levels in order to participate fully in a democratic society (Kincheloe, 1995; SCANS, 1991), whether they enter the workforce immediately upon graduation or at some later time.

Second, schools need to produce graduates who can think critically. According to economic forecasts, critical thinking is a necessity for workplace survival. The ability to think critically is also one of the skills required to make or find meaning in work (Kincheloe, 1995). But regardless of workplace requirements, individuals in the Information/Communication Age are deluged daily with complex information, complicated and sometimes flawed messages, and sophisticated tactics of persuasion. Youth must be able to think critically if they are to function independently in the Information/Communication Age upon graduation from high school.

Third, schools need to produce graduates with the soft skills of communicating through speaking and listening, interacting effectively in a group or team environment, and demonstrating reliability as an employee. Again, economic forecasts emphasize these skills for high-performance workplaces. Teamwork, interaction with a great diversity of people, and changing job roles necessitate the ability to communicate and interact with others, as well as be a reliable worker. As functioning members of society, graduates will need and use these portable skills in any type of job and any human interaction, whether in the workplace or the family. This study, like the reviewed works requesting business to identify essential skills for graduates' entry-level employment, provided little clear direction for educational change. Yet some of the findings are consistent enough with the reviewed literature that educators may feel confident to incorporate them into educational planning.

Recommendations

The following recommendations are based on the findings and conclusions for this study. The recommendations apply to improvement of the educational experience in all types of courses, including workforce preparation. In addition, the discussions reflect the researcher's views that essential work skills are best taught in context, not as isolated tasks. Finally, recommendations apply equally to all fields of education.

Instructional Practices and Attitudes

Revolutionize the teaching-learning process based on ever-increasing knowledge about cognitive development and the brain. Revise, refine, or replace instructional strategies to reflect current knowledge about learning. Develop, implement, and refine instructional strategies to address different learning styles. Integrate the curriculum, emphasizing contextual learning and the interconnectedness of all knowledge and skills. The field is continually expanding with new information about the efficacy of contextual learning, the development of meaning through connection with experience, learning style preferences and the implications for instruction, the interconnectedness of knowledge, and the social nature of learning. In spite of these developments, however, teachers continue to use traditional instructional strategies that emphasize teachers as doers or actors, and students as receivers or audiences. Additionally, teacher-preparation programs continue to prepare prospective teachers to use inadequate techniques, with the result being that novice teachers often possess more antiquated skills than the veterans now in the field. More in-depth understanding of the nature of learning and classroom practices designed to maximize learning are required.

Assessment

Define the knowledge, skills, and qualities deemed essential for graduates five or ten years following high school graduation and assess for these, not discrete bits of knowledge that have little to do with competency in the tested area. Indeed, define *competency* in each discipline or course and clarify its meaning. Utilize assessment practices that reflect the current state of knowledge about cognitive and affective development. Develop assessment policies which reflect the purpose(s) for which assessment is made. While the limitations of multiple-choice, and simply scored paper-and-pencil assessments are widely recognized and acknowledged, these types of assessments remain predominant.

Embracing the complexity of the brain and the learning process naturally leads to inquiry about assessment. One begins to look beyond traditional pen-and-paper strategies toward assessments that measure competence in a variety of ways. But while understanding about cognition has grown, assessment practices have not kept pace. New techniques, like performance assessments and portfolio development, should be considered. These types of assessments, of course, are now being used in some North Carolina schools. North Carolina's high-stakes educational accountability program, called ABCs, however, places little emphasis on these methods, as they are costly to develop, administer, and regulate. But what is included on the test is what is taught in the classroom, including the types of assessment strategies used. Assessment determines what is taught and how. To promote educational change, developments in curricula and instruction should be accompanied by corresponding changes in assessment. When a mismatch exists, assessment becomes an end in itself, not a means to an end.

Curriculum

Assess curricular needs based upon the redefined purposes and goals of education. Revise existing curricula or develop new curricula to address identified needs. Infuse meaning into the curriculum through curriculum integration and real-world activities. Emphasize context-based problems and activities. Revise work training courses to reflect the goals of work education (see Kincheloe, 1995, for a thorough discussion of work education goals). Include in the work education curriculum a critical examination of and dialogue about work, the workplace, workers, and managers.

Integrate work-ready skills into the curriculum, regardless of the discipline being taught. Challenge students to take high-level math and English courses, with the objective of demonstrating proficiency in math, reading, and writing. Design lessons to incorporate activities that approximate team problem-solving functions within the workplace. For instance, include quality opportunities for critical thinking, group interaction, personal development, and leadership in every subject. Emphasize and provide opportunities for evaluation of one's individual work against a standard, clarifying that quality processes are important throughout an activity, not just at its end. Include activities requiring active listening and speaking, incorporating self-assessment and critical feedback from peers and teachers. Require the use of various technologies as tools to promote learning, improve communication, and produce various work products, just as one would find in the workplace. In addition, assist students in development of affective skills demonstrating positive work attitudes. Incorporated into context-based lessons, work-ready skills become a natural part of quality work that has meaning and relevance inside and outside the classroom. And perhaps more importantly, the teaching and reinforcement of these skills across the curriculum on a daily basis increase the likelihood that they will become natural habits of mind promoting lifelong learning.

Standards

Establish quality standards across the curriculum, including affective skills. Publicize these standards, with concrete examples. Establish benchmarks and use formative assessment techniques at the classroom level in order to monitor student progress and adjust instruction for immediate response to observed needs. Develop assessment strategies that balance the need to reflect growth in skills over time and against a recognized standard. This issue is critical for several reasons. First, developmental stage theory reveals that individuals progress from one developmental stage to another, in order, without skipping a stage. Teachers help each individual progress from the starting point of his or her own individual stage of cognitive and affective development, intervening in the learning process at different points for different students. Growth in learning, then, measures progress from the initial point of learning intervention to the time when the intervention ceases (i.e., the end of a course or unit of study), often accompanied by administration of a test. While students may be very successful with regard to progress from an entry to an exit point, they may fail to meet a preset quality standard. This fact underscores a second point: Quality production is determined against an external, unchanging standard applied to all cases. A student can make considerable progress, yet not meet the standards established for the course. This dual nature of student progress in school is part of the reason for apparent contradictions between reports of student progress and actual competence or possession of skills. Traditional methods of assessment and reporting do not reflect this differentiation between progress in terms of developmental growth and progress in terms of a standard. Teaching for competency or for mastery or for understanding may offer the best opportunity for addressing both individual developmental needs and growth against a standard (see Gardner, 1991, for an excellent discussion of education for understanding). Students, not just educators, should be held accountable for progress.

Conclusion

Until a significant number of businesses adopt a high-performance workplace model, it is unlikely that the business community will be able to clarify the skills considered essential for entry-level employment of high school graduates. But regardless of businesses' ability to clarify the needs, educators do have a role in preparing students for work, whether young people enter the workplace immediately upon high school graduation or after post-secondary education. The skills examined in this study are consistent with the literature on high-performance workplaces that now exist and that are forecast. If students possess high-level skills, they will be better prepared to make a quality life for themselves, whether they choose work immediately after high school graduation or continue with post-secondary education.

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PART II
REFEREED ACTION RESEARCH PAPERS

Creating A CD-ROM: The Process

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Abstract

The purpose of this study was to determine if a CD-ROM could contain the content required in our courses and provide the desired mobility. A methodology for creating a CD-ROM was necessary before the content could be developed. The four phases necessary to create a CD-ROM program included: (1) Concept Phase, (2) Interface Design Phase, (3) Production Phase, and (4) Quality Assurance and Testing Phase. These phases are examined and discussed below. The result was a CD-ROM that contained the networking content and provided the desired mobility.

Introduction

Technology educators must frequently update a course, teach up-to-date technology skills and information, and make students more prepared for the digital workplace. Often equipment is not available for hands-on learning. Consequently, multimedia devices are widely used in many everyday-teaching situations. Deciding to use multimedia cannot be an "all or nothing" decision. Some situations may benefit from its use while others may not. This dilemma is why educators face the challenge of "determining how to best incorporate multimedia lessons into an existing learning environment" (Perreault, 62). In this study, integrating CD-ROM usage into the classroom was a hopeful substitution for the lack of hands-on training.

The marketplace is booming with CD-ROM materials. Hudson (1994) reports that nearly 10,000 CD recorders were sold from 1991-1994. A search was conducted to find a CD-ROM to meet the researchers' current need for enhancing topology and networking lectures and take the place of non-hands-on environment. Our topic needs may have been too narrow as the search did not result in a CD-ROM that met the necessary requirements. Therefore, this study was prompted to investigate the feasibility of producing a CD-ROM to meet our curriculum needs. The major requirement for this study was to develop a mobile self-contained CD-ROM.

Purpose

The purpose of this study was to determine if a CD-ROM could contain the content required in our courses and provide the desired mobility. Cross-platform concerns were not considered at this time. A methodology for creating a CD-ROM was necessary before the content could be developed.

Methodology

The researchers discussed the steps they believed would be necessary to develop the CD-ROM program. Their steps followed the four common phases on CD-ROM development as noted by Florio (1997). These phases include the I) Concept Phase, II) Interface Design Phase, III) Production Phase, and IV) Quality Assurance and Testing Phases.

Concept Phase

During the concept phase, it is important to set a specific objective, make sure a CD-RM is the necessary medium, complete an audience analysis, choose an authoring software, and stay focused on the objective.

Interface Design Phase

Obviously, this is a high priority phase in the production of the CD-ROM. This phase sets the stage for user-interaction, appearance, layout, ease-of-use, and general user-friendliness. A storyboard must be produced to get a first-hand visual of the project. The storyboard begins as a hand-sketched program blueprint that evolves into an electronic visual program blueprint. Multiple revisions are necessary during this phase. The planning and creating of a viable storyboard could take fifty percent of the development time of a project (Florio, 1997). Self-checks must also occur at this phase to make sure the objective is being met and the focus is still in line with the objective.

Production Phase

The length of this phase depends mainly on the software proficiency level of the producer. The producer may be at the beginning stage and learning the software or he/she may be prepared to actually begin creating the product. This stage, as with other stages, must allow for many reviews and revisions of the program.

Quality Assurance and Testing

Quality assurance is present throughout the entire project. It is not, however, until a certain point is reached in the CD-ROM production that enough actual information is available to actually test and perform a measure of quality. Several tests, retests, reviews, and revisions begin in the production phase. The tests include topics such as technical workability, visual appearance, content, and user-friendliness. Results of early evaluations can be incorporated in the design of the CD-ROM; however, as more information is produced, it is important to have outside objective opinions via formative and summative evaluations.

A formative evaluation should be completed with participants from two groups: 1) those who are familiar with the content and 2) those who are not content familiar. All participants use the same written evaluation form after Beta testing the program at the computer; however, those not familiar with the content can note their unfamiliarity. Every suggestion will not result in a specific program change, but several revisions may result from this evaluation. The program problems are identified through this process and revised accordingly.

A summative evaluation occurs when the project is finalized. It is then necessary to see if the objective was met. A population similar to the intended audience should complete this evaluation. Assessment of technology application, content, appearance, and user-friendliness will be identified through the summative evaluation. This evaluation should result in suggested final revisions to the CD-ROM product.

Summary

One person can do all of the above parts including several revisions, but time and money can be saved when duties are distributed to individuals that comprise a team. The team would consist of 1) producer(s), 2) content experts, 3) interface designer/programmer, 4) an instructional designer/art director, 5) sound director, and 6) other appropriate staff. As a team they would initially work on the storyboard together and then branch out to complete assigned duties at the proper time (Florio, 1997). It may not be possible to have a team consisting of all of these team members; however, those available should have the ability to work as a team and on an individual basis throughout the different stages of the CD-ROM production. The research team of this study consisted of 1) two producers (the researchers), 2) content experts (the researchers), 3) an interface designer/programmer (the researchers), 4) an instructional designer/art directory (available through the university), 5) sound director (available through the university), 6) appropriate university staff to help with problems during the CD-ROM development process.

Bill Gates (986), president of Microsoft Corporation, has said, "A CD-ROM product is so multi-faceted, it cannot be produced in isolation by one person. The development of CD-ROMs requires a team effort, a blending of skills from a variety of fields. In order to make the most of the potential of CD-ROM, it is essential that we work together from the onset." Granted Bill Gates was talking about the commercial development of CD-ROMs, individual creators of CD-ROM must have the same belief. The total number of hours spent on this project from planning through the final product is estimated at 150-200 hours, even though one researcher was somewhat familiar with the chosen authoring software. Hours will be depending on the learning curve, capability of personnel, and resources available.

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Increasing Students' Research and Communication Efficiency by Teaching Them a Portable Personal Web Server

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Abstract

Today's college students need innovative ways to help them work more efficiently in this competitive world. This article presents how educators can teach students to create portable personal Web servers to increase their efficiency in learning, research, and communication, thereby enhancing productivity. A step-by-step approach is presented with examples to guide students in creating their portable personal Web servers within 50 minutes. The article also indicates the implications of this project and suggests methods for improving Web authoring skills.

Introduction

As our society is entering a knowledge-based, computer-driven economy, a college degree becomes a necessity for any individual who wants to be competitive and successful, regardless of his or her age, gender, and race (Fisher, 1997; Holstein, 1997). Over the last two decades the number of American college students over age 40 has more than tripled. Two-thirds of the older students are women; some of them have returned to school after their children get older, giving them time to develop a career ("Older Students," 1996). Nowadays, most full-time college students work part time; many part-time students work full time, commute, and often have families to support. Students have found that going to college in the traditional way is difficult. They need innovative ways to help them work more efficiently in this competitive world.

This article presents how educators can teach students to create portable personal Web servers to increase their efficiency in learning, research, and communication, thereby enhancing productivity. First, the portable personal Web server is introduced. Then, a step-by-step approach to creating the server is presented with examples. Following the approach, students can create their portable personal Web servers within 50 minutes. Finally, the implications of this project are stated, and methods for improving Web authoring skills are suggested.

Portable Personal Web Server and Its Power

To increase their efficiency and productivity, many business professionals carry their notebook computers wherever they are—at the office, on the road, in the client's office, or at home. However, most students cannot afford to buy notebook computers to increase their efficiency and productivity. Most of them only have access to desktop computers at school labs. Each time students need to search for information on the Web, to take a Web-based course, or to communicate electronically with others, they have to enter Web site URLs (uniform resource locator) or e-mail addresses into the school computers. If the URLs or addresses are not at hand, students have to delay their work or to conduct a time-consuming search for the sites and e-mail addresses. Such repetitive, time-consuming procedures greatly decrease students' efficiency and productivity.

The portable personal Web server is characterized as a customized Web tool that increases its user's efficiency and productivity in three ways. First, the server is designed on a 3.5" floppy disk, which is acceptable to most computers and also very portable for today's busy students. Second, the server is personal because its user can put his or her frequently used Web sites and e-mail addresses on the server. Each time the user wants to search for information, to go to a Web-based class, or to send e-mail, he or she simply inserts the server into a Web-connected computer and open it in Web browser to do the job. Therefore, the user saves time from memorizing and entering addresses repeatedly. And third, the server is easy to create and to update. Students can learn to create their portable personal Web servers within 50 minutes by taking one of the two methods presented in the following section.

Creating Portable Personal Web Server

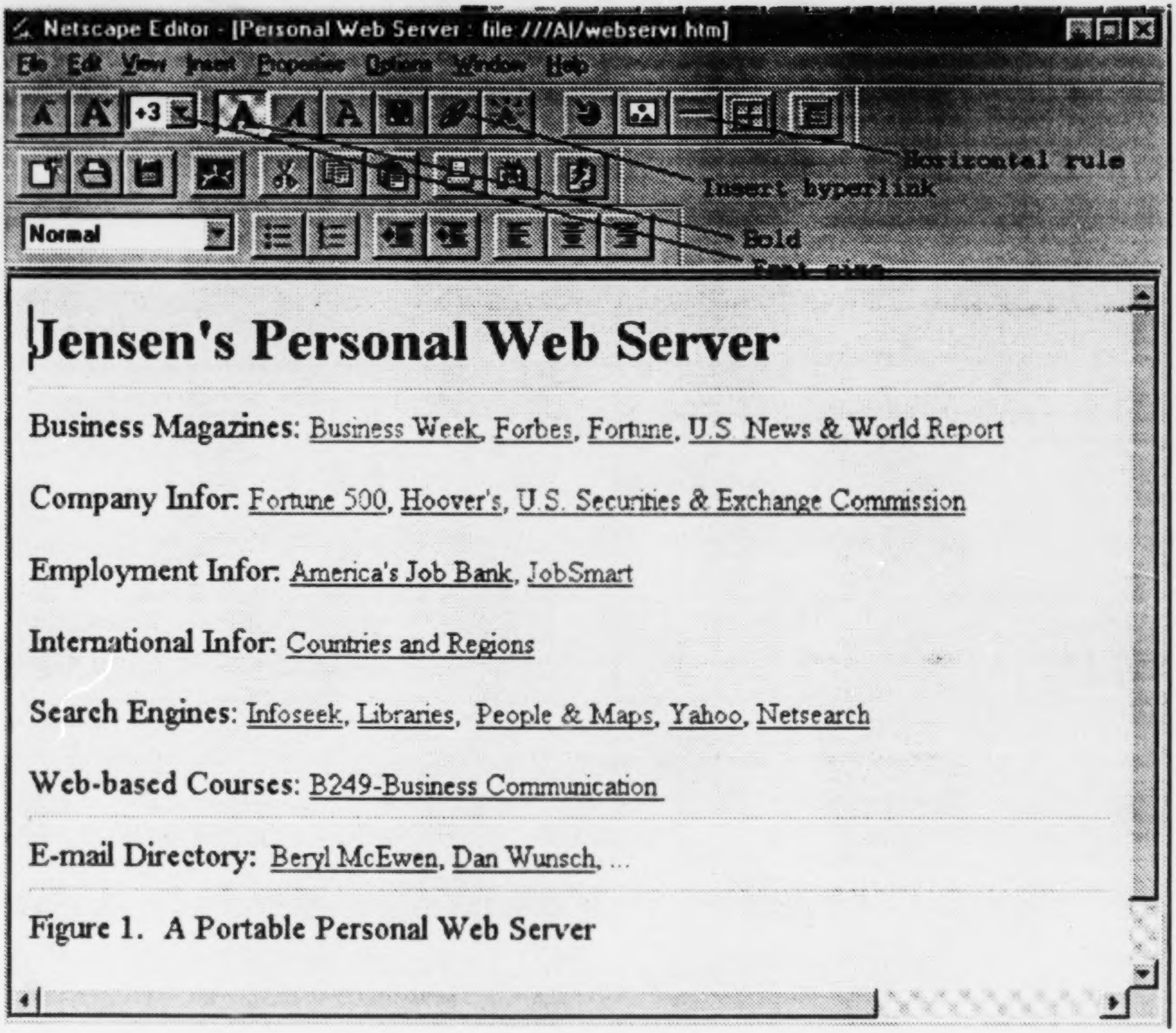
To create a portable personal Web server, each student needs to have a formatted 3.5" floppy disk and to take the following three steps: (a) designing, (b) building, and (c) testing.

Designing Personal Web Sever

Before the lab class, instructors need to ask students to come the computer lab with their formatted 3.5" floppy disks and their frequently used Web site URLs and e-mail addresses. In class, instructors first show students an example of a portable personal Web server organized by subject categories (see Figure 1 for example).

As shown in Figure 1, the subject categories of the server meet students' needs for business research, Web-based courses, and communication. Following the example, students can categorize their frequently used Web sites by subject and list e-mail addresses alphabetically in the e-mail directory. Students can

Figure 1
Personal Web Server


Netscape Editor - [Personal Web Server : file:///A|/webservr.htm]
File Edit View Insert Properties Options Window Help
+3
Normal
Horizontal rule
Insert hyperlink
Bold
Font size

Jensen's Personal Web Server

Business Magazines: Business Week, Forbes, Fortune, U.S. News & World Report

Company Infor: Fortune 500, Hoover's, U.S. Securities & Exchange Commission

Employment Infor: America's Job Bank, JobSmart

International Infor: Countries and Regions

Search Engines: Infoseek, Libraries, People & Maps, Yahoo, Netsearch

Web-based Courses: B249-Business Communication

E-mail Directory: Beryl McEwen, Dan Wunsch, ...

Figure 1. A Portable Personal Web Server

also add the Web sites such as Libraries, Fortune 500 list, U.S. Securities & Exchange Commission, America's Job Bank, Infoseek, and Yahoo to their servers if these sites are not on their list yet, but important to them.

Building Personal Web Sever

Using Netscape Navigator Gold (or its newer version, Communicator) to build personal Web servers is most convenient. If the computer labs do not provide Netscape Navigator Gold nor other Web development tools, students can build their servers in HTML (Hyper Text Markup Language, see Appendix A) on Notepad located in Windows Accessories. This section shows first how to use Netscape Navigator Gold and then how to use HTML on Notepad to build a portable personal Web server.

Method #1: If Netscape Navigator Gold is available, students can build their potable personal Web servers as follows:

1. Activate Netscape Navigator Gold by clicking its icon.
2. Click **File**, **New Document**, and **Blank** on the Menu bar to create a new Web file.
3. Use Figure 1 as an example, write and format your server according to your design: font size, bold, and horizontal rule (see these features on the Formatting toolbar). Save the file as **webservr.htm** on your floppy disk in Drive A.
4. Insert hyperlinks by (a) highlighting the name of the Web site (e.g., Business Week), (b) clicking the Hyperlink icon on the Formatting toolbar, and (c) typing the Web site URL (e.g., http://www.businessweek.com) and clicking OK to complete.

5. Follow the procedure described in Step 4 and insert the following Web site URLs and e-mail addresses into their related places. For Web-based Courses and E-mail Directory, you need to enter your URLs and addresses.
   http://www.forbes.com
   http://www.pathfinder.com/@@OyylwYAdy6pWx@2/fortune
   http://www.usnews.com/usnews
   http://www.pathfinder.com/@@OjynlwYAdy6pWx@2/fortune/fortune500
   http://hoovweb.hoovers.com
   http://www.sec.gov
   http://www.ajb.dni.us
   http://jobsmart.org
   http://www.yahoo.com/Regional/Countries
   http://www.infoseek.com
   http://www.library.bsu.edu
   http://www.infoseek.com/Facts?pg=maps.html
   http://www.yahoo.com
   http://home.netscape.com/escapes/search
   http://www.bsu.edu/classes/zhao/BEOA249
   mailto:berylm@athena.ncat.edu
   mailto:wunschdr@wpo.cso.niu.edu
6. After completion, save the file again on your floppy disk in Drive A and click the View in Browser (i.e., Netscape) icon on the Standard toolbar to test the portable personal Web server.

Method #2: If Netscape Navigator Gold or other Web development tools are not available, students can build their servers by writing HTML files on Notepad located in Windows Accessories as follows:

1. Double-click the Notepad icon in the Accessories window to activate Notepad.
2. Build your Web server by (a) using the same HTML tags of the following example and (b) entering data from your own design.
   Example:

```
<HTML>
<HEAD>
<TITLE>Jensen's Personal Web Server</TITLE>
</HEAD>
<BODY TEXT="#000000" BGCOLOR="#EEEEDD"
LINK="#000099"VLINK="#990099" ALINK="#990000">
<B><FONT SIZE=+3>Jensen's Personal Web Server</
FONT></B>
<HR>
<BR><FONT SIZE=+1>Business Magazines: </FONT>
<A HREF="http://www.businessweek.com">Business
Week</A>,
<A HREF="http://www.forbes.com">Forbes</A>,
<A HREF="http://www.pathfinder.com/
@@OyylwYAdy6pWx@2/fortune">
Fortune</A>,
<A HREF="http://www.usnews.com/usnews/">U.S. News
& World Report</A>
<P><FONT SIZE=+1>Company Infor: </FONT>
<A HREF="http://www.pathfinder.com/
@@OjynlwYAdy6pWx@2/fortune/
fortune500">Fortune 500</A>,
<A HREF="http://hoovweb.hoovers.com">Hoover's</A>,
<A HREF="http://www.sec.gov">U.S. Securities & Ex-
change Commission</A>
<P><FONT SIZE=+1>Employment Infor: </FONT>
<A HREF="http://www.ajb.dni.us">America's Job Bank</
A>,
<A HREF="http://jobsmart.org">JobSmart</A>
<P><FONT SIZE=+1>International Infor: </FONT>
<A HREF="http://www.yahoo.com/Regional/
Countries">Countries and Regions</A>
<P><FONT SIZE=+1>Search Engines: </FONT>
<A HREF="http://www.infoseek.com">Infoseek</A>,
<A HREF="http://www.library.bsu.edu">Libraries</A>,
<A HREF="http://www.infoseek.com/
Facts?pg=maps.html">People & Maps</A>,
<A HREF="http://www.yahoo.com">Yahoo</A>,
<A HREF="http://home.netscape.com/escapes/
search">Netsearch</A>
<P><FONT SIZE=+1>Web-based Courses: </FONT>
<A HREF=@http://www.bsu.edu/classes/zhao/
BEOA249@>B249-Business Communication</A>
<P><FONT SIZE=+1>E-mail Directory: </FONT>
<A HREF="mailto:berylm@athena.ncat.edu">Beryl
McEwen</A>,
<A HREF="mailto:wunschdr@wpo.cso.niu.edu">Dan
Wunsch</A>
</P>
<HR>
</BODY>
</HTML>
```

3. Please proofread your file carefully and save it with the filename: **webservr.htm**. Be sure to save the file on your floppy disk in Drive A.
4. Exit Notepad and double-click the Netscape Navigator icon in the main window to test your Web server.

Testing Personal Web Sever

To test their portable personal Web servers on Nestcape, students need to click **File**, **Open file in Browser**, **Drive A**, the file **(webservr.htm)** and **OK**. When their personal Web servers appear on screen, students can test them by double-clicking each of the Web sites and e-mail addresses. If sites cannot be connected or e-mail cannot be delivered, typos often exist in the respective URLs or addresses. Students can correct mistakes and update the servers by going back to Method #1 or #2.

Practical and Theoretical Implications

Teaching students to create their portable personal Web servers has the following practical and theoretical implications.

1. The portable personal Web server helps students increase their efficiency and productivity in learning, research, and communication.
2. Through the project students learn the basic skills of authoring and updating Web pages.
3. According to the theory of creative intelligence (see, for example, Gardner, 1983, 1993, 1995; Sternberg, 1988; Sternberg & Lubart, 1991, 1992), the project may spark and support students' creativity in discovering and developing new personal Web software and other products that can help people work more intelligently and productively.

Methods for Improving Web Authroing Skills

Before learning how to improve Web authoring skills, students need to know Web ethics and copyrights. The Fair Use provision in the U.S. Copyright Law (U.S. Copyright Office, 1996) states:

> Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. (U.S. Copyright Law, Section 107)

As Feder (1997), a U.S. Copyright officer, explained, if the purpose and character of the use is for nonprofit educational use, then it is fair use; if the use is of a commercial nature, then it is not fair use. Knowing the Fair Use provision, students can properly use the following approach to improving Web authoring skills.

When students see an attractive Web page on Netscape, they can click **View** and **Document Source** on the Menu bar to see the document source and learn how it was programmed. They can save the document on a disk by selecting **File**, **Save As...**, **Drive A**, and **Save**.

To copy an image or background color from a Web page, just position the mouse pointer over the image or background color, then press the right mouse button to display a pop-up menu for saving the image or background color to your disk. Students can also create or edit an image or background color by using Paint Shop Pro, a user-friendly tool available at JASC Web site (http://www. jasc.com/download.html).

To learn the latest Web authoring tools, students can visit the Web sites of such companies as Microsoft (http://www.microsoft.com), Netscape (http://home.netscape.com), JASC (http://www.jasc.com), Macromedia (http://www.macromedia.com), and Sun Microsystems (http://www.su.com).

To join or form an interest group to share each person's experience in developing and using Web software is also a good way of learning.

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Appendix A

Essentials of HTML

HTML is the Hyper Text Markup Language used to define the layout of a Web page. Any word processor can be used to write an HTML file and then save it as an ASCII file for the Web browser. Although most Web authoring tools do not require the user to know HTML, knowing the essentials of HTML enables the user to deal with advanced Web design issues. The following is a description of the HTML structures:

A. HTML uses head and tail tags to mark up the language to be shown on a Web browser: <tag> ... </tag>

B. Web files use the following general file format:

```
<html>
        <head>
                <title> ... </title>
        </head>
        <body>
                body elements
        </body>
</html>
```

C. Web pages' body elements include these tags:

1. Header tags for creating six different levels of headings:
   e.g., <h1> ... </h1>
   <h2> ... </h2>
   <h3> ... </h3>
2. Center tags for centering text:
   <center> ... </center>
   e.g., <center><h1> ... </h1></center>
3. Break tags for separating sections, paragraphs, and lines:
   <hr> Horizontal rule.
   <p> Paragraph break, with a blank line between lines.

 Line break, with no blank line between lines.
4. List tags for creating ordered (numbered) and unordered (bullet) lists:
   Ordered list:

```
<ol>
        <li>
        <li>
        <li>
</ol>
```

   Unordered list:

```
<ul>
        <li>
        <li>
</ul>
```

5. Hyperlink tags for linking related Web files and sites:
   ...
   e.g., Netscape
6. E-mail address tags for linking e-mail window:
   ____
7. Graphic image tags for linking image files:
   <img src="___.gif" height=value width=value align=top or ...>
   e.g., <img src="welcome.gif" height=150 width=200 align=left>

An Innovative Approach to Business and Marketing Teacher Education

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Abstract

This presentation describes co-requisite courses, collaboratively planned by two teacher educators at Western Kentucky University. These senior courses, Business and Marketing Education Methods and Business and Marketing Education Senior Seminar, provide opportunities for students to work in simulated business and marketing education departments in preparation for student teaching. Course projects, peer teaching, field experiences, presentations, portfolios, professional development plans, and assessment strategies that are used throughout the semester are briefly described.

Introduction

Starting January 1, 1998, Kentucky requires dual certification in business and marketing education in grades 5 through 12. In order to meet the professional education challenge of preparing students to teach business and marketing subjects, Western Kentucky University faculty have revised the methods course and a senior seminar course to provide additional training in marketing education. These two 3-credit co-requisite courses are taught in the spring semester, back to back, and faculty collaboratively develop their semester plans to provide students with relevant experiences as they prepare for student teaching in business and marketing education.

Students are divided into business and marketing departments typical of those found in a high school. This past spring each of the six departments contained three or four business and marketing "high school faculty." Information and examples about the projects, peer teaching and field experiences, new course offering presentations, work and eligibility portfolios, materials, and assessment strategies that are used throughout the semester are presented.

Projects

One of the early assignments in the seminar class is to re-examine the philosophy papers that are written in the students' introductory education course. Specifically, the students are asked to update their philosophy papers to include their beliefs about teaching business and marketing education.

After the students have revised their personal philosophy papers, they develop a "departmental" philosophy which serves as the basis for the curriculum facilities report which they prepare for the methods class. This departmental report is based on state requirements and recommendations and on the National Standards for Business Education. The report details the department's goals, curriculum, teachers' schedules, facilities, and room layout. Information on the school-to-work program is also included.

Another three-part project that the"high school faculty" complete for the seminar class is promotional materials for their department suitable for student recruitment or for parent information. The first part of this project is to develop a three-fold brochure about the department, FBLA, and/or DECA; the second promotional piece is a slide presentation using either Lotus Freelance graphics or PowerPoint; and the third piece is a web page for their business and marketing department.

Peer Teaching and Field Experiences

In the methods course, students peer teach in Western's peer teaching laboratory where they use demonstration equipment including an LCD panel; they are videotaped. In their field experiences in the high school they are required to assist in the teaching of one lesson and to teach one lesson independently. They analyze all of their teaching by using Kentucky's internship classroom observation instrument.

Although the majority of their 20 hours of field work is in the high school, students also have an opportunity to work with FBLA and DECA regional events (coordinated through the seminar class) and to serve as a keyboarding or web page design lab assistants at Super Saturdays (a five-week University program for gifted children).

New Course Offering Presentation

Because the majority of the field placements involve traditional business departments, students need additional information and experience with marketing courses. One way this is accomplished is through a methods class requirement to prepare a new course proposal. Pairs of students are assigned a basic business/marketing course topic such as Entrepreneurship, Business and

Marketing Career Exploration, Business Management, and Banking and Financial Services. The two students then develop a new course proposal, assuming they would like to add this class to their department's offerings. After gathering information about course content, methodology, and strategies, students prepare and deliver a 10-minute presentation for their site based decision making

To provide additional background information for their new course presentation, groups of students research and report on international business and marketing in the seminar class. Other activities that provide valuable information about marketing programs are a marketing education guest speaker who talked with the students for over three hours about her high school marketing program and a field trip to another high school that offers marketing courses.

Working and Eligibility Portfolios

Students in the methods course prepare working portfolios—a collection of materials that will be helpful to them in their student teaching, internship, and teaching careers. In the seminar class, students prepare eligibility portfolios that are evidence of their meeting each of Kentucky's eight New Teacher Standards. Although this is the culminating experience for the seminar course, many of the entries or artifacts such as unit and/or lesson plans will have been written for the methods class.

Materials

State department materials, curriculum guides, equipment guidelines, DECA materials, FBLA materials, the Stock Market Game, and reports on enrollment and course offerings in the state are used in both courses to make the students' experiences as realistic as possible.

The students also use some of the same text materials in both of the courses. For example, the *NBEA Yearbook* is one of the seminar texts. The *1997 Yearbook* contains an excellent chapter on the history of business education, and the methods teacher used this in the early part of her course. One of the methods texts is Calhoun's methods book; however, two of the chapters were covered by the seminar instructor this past spring. The *AVA Vocational Teacher's Survival Guide* is also purchased for the methods class; but over the last two years, an increasing number of the chapters have been covered in the seminar class.

Assessment

A variety of individual and group assessments is used in both courses including presentations, notebooks/portfolios, performance events, written tests, and the KTIP (Kentucky Teacher Internship Program) classroom observation form. Students are provided scoring guides prior to completing performance events, presentations, and notebooks/portfolios.

Summary

The flexibility of the seminar course taught in conjunction with the methods class, enable university faculty to incorporate the latest trends and topics (such as web page design and international business) while providing the solid foundation necessary to prepare students to teach business and marketing courses in an ever-changing world.

Students seem to agree; their evaluations frequently included comments about the relevancy of the courses' contents and activities. Sample comments are:

> "I am so glad that this course is designed the way it is because I feel like I am going to be prepared for student teaching."

> "I think this class is full of wonderful content. I think everything is relevant and should be included for years to come."

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The International Network in the Business Communications Classroom

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Abstract

This paper reports on students' attitudes toward a business communications assignment called the International Scavenger Hunt (ISH) which is given in a required undergraduate business communications course. It also reports on students' perception of actual learning after the exercise. The ISH exercise teaches the rudiments of international networking. Its objectives are to teach students to think globally and to understand and use networking. The pedagogical approach addresses student's business naiveté, preference for passive learning, low level of discourse, and intent to keep business learning in discrete categories. This assignment requires specific critical thinking skills: trial-and-error learning, conditional problem solving, analysis and categorization, and intellectual orienteering.

Introduction

The limited time allowed for teaching business communications at most universities requires loading each assignment with as many tasks as possible while invoking as much critical thinking as possible. The risks of these dense assignments are losing student satisfaction or confusing their learning. While courses in international business try to stress writing, the ISH brings international business into the business communications classroom early in students' academic careers (Ranney and McNeilly 1996). The ISH is given to students after a short lecture (see Gatenby and McLaren 1993) on networking. It requires students to answer questions as though they were members of a consulting group like Indiana University's Global Business Information Network that researches inquiries about new international products: a scenario designed to "provide enough reality to bring the event to life (Rutherford 1994). In order to answer the questions, the students must ask questions of anyone they think can lead them to an authoritative answer. They are also required to answer one question by using the Internet. The questions usually involve problems of cultural values or geographic realities:

- Is it feasible to market car alarms in Poland?
- Is it feasible to market freshwater fish in Norway?
- Is it feasible to market a dust buster product in Venezuela?
- Is it feasible to market tall iced tea glasses in Europe?
- Is it feasible to market checkbook covers in the Ukraine?
- Is it feasible to market dollar sign money clips in Liberia?
- Is it feasible to market Christmas ornaments in Iran?
- Is it feasible to market classical music CDs in China?
- Is it feasible to market dishwashers in Japan?

Students then write a memo to the head of the consulting firm showing their findings, telling their source, and evaluating the authority of the source.

Students' immediate response to what they view as an ambiguous assignment is to ask for specific directions. When these are not forthcoming, they actually begin making phone calls and roaming faculty offices looking for someone who has or who can lead them to the answers. Most well researched answers are correct although the answers may disagree.

Methodology

A survey was administrated to 54 students resulting in 51 useable surveys. The survey incorporated a four-item summated satisfaction scale (Gaski 1986; Dwyer and Oh, 1987), 21 attitudinal measures, and five demographic items. Reliability for the satisfaction scale was .82, acceptable for this exploratory research (Nunnally 1978). The satisfaction scale exhibited good validity in a common factor analysis as all item loadings exceeded .75 on a single factor. See Table 1 for a summary of the factor analysis.

A regression analysis was run using the summed satisfaction score as the dependent variable. The regression utilized all 21 attitudinal measures and the demographic variables as independent predictors of student satisfaction with the ISH exercise. The stepwise method of entering variables into the regression equation was used (Pedhazur 1982).

Six items, all attitudinal, emerged as significant predictors of the level of student satisfaction. The six items are shown in table 2. Combined, these six items produced an adjusted R^2 of .597, explaining almost 60% of the variance in student satisfaction with the exercise.

Results

Students showed a surprisingly high level of satisfaction with the ISH when asked about their increased cultural awareness

Table 1
Satisfaction Scale Factor Analysis

Eigenvalue = 2.645, % variance explained = 66.116

Satisfaction Scale Item	Loading
In general, I was pretty satisfied with the ISH exercise	.878
Overall, the ISH was a good exercise	.809
Overall, the ISH was a benefit to me	.807
I would recommend the ISH exercise to a friend	.754

Table 2
Summary of the Regression Analysis

Adjusted R2 = .597, df = 44

Item	Unstandardized Beta	Standard error	Standardized Beta	t statistic	Sig. of t
ISH increased my level of cultural awareness	.703	.269	.258	2.616	.012
Since I have completed the ISH, I am more confident talking with new people	1.731	.447	.417	3.875	.000
I think networking is dishonest	-1.636	.361	-.462	-4.535	.000
The Internet helped with ISH	-.717	.202	-.340	-3.552	.001
I knew local businesses had international links before the ISH exercise	-.851	.284	-.328	-2.995	.004
I learned about business networking through the ISH exercise	.869	.375	.239	2.314	.025

and increased knowledge of business networking. A strong negative correlation appears between satisfaction and the assertion that networking is dishonest which may indicate students already use networks but do not identify them as such.

Students are unaware of the linkage between local businesses (Altbach and Peterson 1998) and international business. The more unaware they are, the more dissatisfaction they show toward the exercise.

One unexpected result is the negative correlation between the use of the Internet and satisfaction with the ISH. Students' lack of success with the Internet shows they probably need more experience in searching it.

Discussion

Given students' original resistance to the ISH, their satisfaction with the exercise and their overall learning is somewhat surprising. The resistance probably proceeds from the unfamiliarity with or fear of critical thinking involved in the exercise. Networking itself is a series of trial-and-error (hypothesis and results) experiments heavily weighted toward obtaining results. The choice of which question can be answered by which authority and which question is best researched on the Internet requires conditional problem solving (if—then). The search requires thinking in categories particularly on the Internet (for example, country, religion, practices). Students too often search in concrete terms like country + Christmas ornaments, and the search goes poorly.

Students also spend much time in evaluating their authorities, accepting the opinion of the Japanese foreign student whom they found through networking with the Foreign Students Club while rejecting Uncle Ed's opinion because he based his answer on his experience of 20 years ago. This evaluation task does not appear to transfer from their experience in writing research papers.

Perhaps most important, they exercise their intellectual orienteering powers learning everything from simple orienteering—which direction is the International Business Department—to overall intellectual orienteering—what business savvy must be assumed to answer this question. This exercise is particularly valuable to students because even as sophomores or juniors, their business experience is limited. Moreover, many students simply are unaccustomed to the mental work involved in being good business students.

The nature of the assignment provides particularly rich classroom discussion. The only wrong answer is one made hastily without attention to authority. Students who are often quiet during discussion refuse to be ignored in the ISH discussion.

Conclusion

The data provided by the students justifies its continued use. Students' pressure on the professor to be more directive should be resisted. Additional exercises to further students' ability to network can be added to the coursework or fitted into coursework in other classes. A review of students' need for more Internet searching experience needs to be conducted.

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A Multi-Disciplinary Approach for an Integrated International Business Curriculum for High School and College Programs

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Abstract

As the need for global business education expands, a curriculum planning process is recommended to: (1) identify relevant course content, (2) create involvement-oriented learning activities, (3) utilize community resources and technology, (4) develop interdisciplinary course connections, and (5) formulate assessment methods. An integrated international program will expand student understanding of geographic, historic, economic, social-cultural, political-legal, and technological influences on business activities. With emphasis on multi-disciplinary content and involvement-oriented instructional strategies, students will develop technical and human relations skills along with international career and global entrepreneurial competencies to serve them as they live and work in the global economy.

The Need for Global Business Education

Volatile currency markets, blossoming democracies, and expanded international trade relations are just some of the evolving and ongoing influences creating the need to integrate international business concepts into existing courses or to create specialized international business courses.

Global influences are also evident in other ways. Over 80 different native languages are present in the Los Angeles school system. In business, AT&T in the United States employs staff members capable of contacting prospective customers in 140 languages.

Research reveals that two decades of discussion have resulted in a consensus regarding the need to internationalize business courses and programs. As noted by Kedia and Cornwell (1994), this process should develop global awareness, global understanding, and global competence.

A growing need exists to include international business content in all courses. An integrated international business curriculum is designed to provide students with the basic knowledge and skills related to international economic activities and global business transactions.

The Curriculum Planning Process

Planning and implementing an international business curriculum can involve various stages. Global business examples, topics, and concepts are easily integrated into existing courses. Preparation of students with a global perspective requires: (1) an ability to work with individuals from varied cultures, and (2) the competence to deal with potential tensions that may occur when balancing global strategies with local customs and values.

In an effort to develop international awareness, international understanding, and international competence among students, business educators should:

1. identify international course content and learning activities appropriate for integration into existing business courses.
2. develop integrated course activities and research projects for use in international studies instruction in business courses.
3. integrate international-related community resources into various courses.
4. create a strategy for increased use of technology in international courses.
5. explore interdisciplinary curriculum links with other academic departments to enhance international business content.
6. create methods to: (a) assess student progress; (b) monitor student perceptions of revised content and instructional; (c) identify needed skills and competencies for graduate study and employment.

International Business Curriculum Patterns

The implementation of an international business program can evolve through five phases. First, the process can start by using international examples in various classes. For example, discussion of the operation of stock exchanges may be expanded to include financial markets in other countries.

Second, teachers are encouraged to develop assignments related to international business situations. A business plan project in Introduction to Business or Entrepreneurship might involve an exporting enterprise.

Next, expanded coverage can result with the creation an international units for existing courses. For example, a unit on international accounting procedures may be developed for use in various courses.

Then, the planning of a specific course may occur. These courses might include Introduction to International Business, International Management, Global Marketing, Cross-Cultural Business Communications, International Accounting, or International Finance.

Finally, some schools may select to make a major commitment when they establish an international business program with several courses involving other academic departments, a foreign language requirement, and internship experiences for students.

International Course Content

International business concepts need to be identified for inclusion into existing business courses. This process may involve a content analysis of textbooks and syllabi from other schools along with discussion with business people involved in global business activities.

The foundation of international business education involves key concepts such as importing, exporting, balance of trade, balance of payments, foreign exchange, trade barriers, tariffs, level of economic development, infrastructure, and strategic alliances such as licensing, franchising, joint ventures.

In addition to these core concepts, specialized international topics for various functional areas of business should be emphasized. For example, marketing courses might include decisions about standardized or customized products for international markets, cultural influences on promotional activities, and foreign legal restrictions on packaging or pricing. In finance courses, global business coverage might include the influences of political uncertainty on required rates of return or planning international capital projects using joint ventures.

The National Business Education Association provides a framework for developing an international business curriculum and program. The National Standards for Business Education (NBEA, 1995) lists more than 300 learning objectives for nine areas of international business education.

Instructional Strategies

International business curriculum specialists advocate use of global case problems, internships, and cross-cultural training (to develop multicultural sensitivity and knowledge) for global instruction (Gibbs, 1994)

In addition to these strategies, collaborative and interactive learning activities that make use of resources beyond the classroom should be identified for various international courses. These field activities may include: (1) one-on-one interviews with business people and government officials regarding exporting and international trade activities; (2) field surveys of attitudes and behaviors related to international business trends and practices; (3) student-created video documentaries to report findings from course assignments; (4) publication of research findings of course assignments (a) in newsletters, (b) on student-created Web sites, and (c) poster session seminar presentations.

Integration of Community Resources

For international courses, potential business community resources can be examined in an effort to identify (1) observational field research sites, such as retail stores, provide insight into imported products and cultural influences on business practices; (2) sites such as the cultural museums, the World Trade Center, and consulates could serve as on-site research locations; and (3) resource people to serve as contacts for student research assignments.

Expanding the Use of Technology

Technology allows information and cultural influences to travel around the world at an unprecedented speed. Electronic communication also results in a transfer of values along with the transfer of information. An awareness of various products and behaviors creates demand previously limited to one geographic region. When implementing integrated international business content, enhanced use of technology might include: (1) using presentation software for in-class and video presentations; (2) using and developing Web sites, including (a) search techniques and uses of Web sites for assignments; (b) evaluation of Web sites based on content accuracy, current information, and objectivity; and (c) guidelines for using Web authoring software to create Web sites for reporting results of class assignments.

Interdisciplinary Curriculum Links

As eastern European countries evolved from central planning to market economies, foreign investment and entrepreneurial efforts spurred expansion. The historic, political, and economic implications of such events underscore the need for broad-based knowledge among international business students.

Faculty members in departments such as art, anthropology, history, political science, psychology, comparative literature, foreign language, music, and sociology should be consulted in an effort to provide students with knowledge and skills that reflect a global understanding. This process can identify concepts (such as historic events, political ideologies, cultural practices, musical themes) that influence the business environment in other cultures.

In addition, faculty members in the chemistry, biology, and physics can point out links between their content and the business curriculum. This relationship is vital as improved level of economic development and enhanced infrastructure in developing economies is contingent on scientific research and technological advances.

Planned Assessment of Outcomes

Currently, in most courses, students are evaluated on the basis of individual efforts for exams, papers, and other assignments. Attempts should be made to develop new methods for assessing student achievement, creativity, group achievement, and team work. Evaluation tools can be created to assess student perceptions of newly implemented instructional strategies and to identify the needs of employers in relation to newly implemented instructional strategies.

Concluding Comment

Every business employee works for an organization that either imports, exports, or competes against other companies that import or export. As a result, business educators should expand awareness of economic and social-cultural factors, examine political-legal influences on business, develop technical and human relations skills, and evaluate both financial gains and social contributions of global business operations. An integrated, involvement-oriented global business program will serve students with an understanding of global business activities of nations, companies, and individuals while enhancing their development of international career and global entrepreneurial skills.

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Preparing Qualified Employees for the AS/400 Environment: A Working Partnership Between Business and Industry and Tidewater Community College

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Abstract

With increased focus on training prospective workers to function in a technologically rich environment, it has become apparent that partnerships between business and industry and educational institutions pave the way for successful programs. This project describes one such partnership initiated by business and industry with Tidewater Community College to prepare qualified employees for the AS/400 environment, which is an IBM mid-range computer system with its own operating structure and set of commands geared to small and medium-sized businesses. Over one hundred AS/400 shops in the Hampton Roads area currently face a critical shortage of trained programmers and operators, mirroring the same phenomenon currently experienced nationwide.

Introduction

The Virginia Beach Campus of Tidewater Community College (TCC) began to offer a new career studies program under the IST (Information Systems Technology) prefix in January 1998 entitled the "AS/400 Specialization." There are eight courses totaling 27 credits in this program. (The completion of additional course work could lead to a certificate and/or an AAS Degree in Information Systems Technology). While on the surface this program may appear to be just one more of the many programs offered by TCC, it is dramatically different in that it was initiated at the request of business and industry, based on the work skill requirements of the AS/400 community, and monitored by AS/400 programmers and management staff.

To gain a better understanding of the program, one only needs to review the events of this past year. Early in the summer of 1997 at the request of business and industry, Tidewater Community College Information Systems faculty and division chair met with representatives from TARMAC America, Lillian Vernon, and HQ (Hechinger – Home Quarters – Builders Square) to discuss the problems faced by local AS/400 installations. At that time we were advised that the more than one hundred AS/400 shops in the local area currently face a critical shortage of trained programmers and operators. The AS/400 is an IBM mid-range computer system with its own operating structure and set of commands geared to small and medium-sized businesses. Because this shortage is being experienced nationwide, local companies are unable to hire qualified personnel from outside the area as well. During the meeting we explored avenues in which TCC might be able to assist in decreasing this problem for area businesses.

Program Preparation

By early July 1997, the business partners had determined that, of the schools in the area, TCC was the most receptive to their needs. Thus, a partnership was formed. By late July TCC had arranged for a DACUM (Develop A CurriculUM) process to take place at TARMAC. TCC brought in a facilitator from the Curriculum Review Center near Richmond to work with eight AS/400 programmers and analysts to develop a task list of work duties. The lead faculty member had earlier researched the Internet for similar programs and presented the group with an initial task list. The DACUM group then spent the entire day perusing the list and developing an updated task list that clearly depicted their expert views on the needed work tasks. The lead faculty member transformed the new task list into a group of eight courses that now comprise a career studies program labeled as the "AS/400 Specialization." This career studies program has since been accepted by the business partners as it was originally developed.

The business partners sent a proposal to IBM in September 1997 to begin an IBM-recognized and sanctioned partnership with Tidewater Community College. Acceptance of this proposal would include: an AS/400 computer system placed on the Virginia Beach Campus and a week of free training for a faculty member in Rochester, MN; technical support, advisory support, and internships provided by the partners; development of a college program to train students to work in the AS/400 environment.

By October 1997, IBM had accepted the partnership proposal making TCC the thirtieth school in the nation to participate in their Partners in Education Program. The lead faculty member applied for and was awarded a Perkins grant to provide additional training materials. The AS/400 arrived on campus in December and the program was slated to begin in January 1998.

Prior to this partnership, there were no local training programs for the AS/400 environment available anywhere in Hampton Roads through public or private institutions. Most educational institutions, both pubic and private, had long since dropped instruction in RPG. Thus, this program fulfills a critical need not addressed elsewhere in the local area.

In preparation for program startup, the lead faculty member was given half release time to work twenty hours per week in several AS/400 shops during the fall semester 1997. Because of this faculty internship experience, she was able to bring real world experiences to the classroom as she taught the Operations and Facilities course in spring 1998. Experiences like these allow our courses to become not just theory, but rather extensions of the real world AS/400 environment.

An "AS/400 Open House" was held in late November 1997 to apprise students of this new program. Between the day and evening sessions, more than fifty individuals attended. Programmers representing the business partners were there to answer questions related to employment opportunities, salary, benefits, and technical expectations. Since the courses are specific to the AS/400 environment, it is expected that students will come to the program with knowledge of programming and business applications such as those found in introductory computer courses, obtained in high school classes, or on the job.

Between the arrival time of the machine in late December and mid-January 1998, more than 100 hours of technical assistance had been logged by programmers and analysts from the three companies in getting the machine set up for the spring semester. It was obvious that the business partners had a real commitment to this project.

Program Implementation

An RPG programming class and an Operations and Facilities course were offered in spring 1998. The Operations and Facilities class filled with 25 students and a second section was added to the schedule without benefit of printed advertisement and obtained sufficient enrollment. These courses were repeated in summer 1998. In addition, Beginning and Advanced CL were taught. In the fall of 1998, the Beginning and Advanced RPG classes and the Information Systems Development course were taught. By spring 1999 all eight of the courses will have been offered one or more times. Thus, it is anticipated that fifteen to twenty students may complete the program by May 1999 and be ready to enter a receptive job market by the summer of 1999.

Prospective student interest has remained level. It is expected that another 25 students will enroll in the beginning classes in spring 1999 and that most of the forty students currently enrolled will continue on to more advanced classes at that time. Telephone inquiries have become frequent from both prospective students and employers. It is clear, however, that the program needs additional publicity. While most employers have become aware of its existence, the enrollment has not been high enough to support the local demand. Further complicating the enrollment picture is the high demand for graduates of programs supporting instruction for network engineers and Internet specialists. The AS/400 does not have the same name recognition as many of the other programs, which perhaps distracts students to other programs.

The AS/400 Advisory Committee met earlier in spring 1998 to review the curriculum and the status of the program. Six of eight companies were represented at what would be best described as a working session. The content of each course was reviewed. Discussion of possible internships, donations of real program code and technical expertise, the need for qualified adjunct instructors, etc. were addressed.

In early June 1998, the Council on Vocational Education in Virginia recognized this program as one of three outstanding community college business and industry partnerships. Two of the partners, the lead faculty member, and the division chair attended the awards luncheon in Richmond.

The lead faculty member along with an operations manager from one of the business partners attended a weeklong IBM-sponsored AS/400 conference in Reno, Nevada, in June 1998. They returned with numerous innovative ideas for implementation into the program. In late July, the lead faculty member also attended the IBM training session in Rochester, Minnesota where she networked with other educators involved in the Partners in Education Program. With rapid changes in technology, it is important that the curriculum maintain currency with marketplace requirements.

While most internships will occur near the end of the program, one student with advanced skills was involved in an internship with the company of one of the partners during her first semester. That firm has since hired her. Four students gained full-time employment in the field during their second semester. These successes will pave the way for more internships in the future—and successful internships will assure graduates of positions within the AS/400 environment. More interns have been placed during the beginning stages of the program at the request of business partners.

Later this fall, it is anticipated that the lead faculty member will be featured in local newspaper and/or magazine articles focusing on the AS/400 program. Newspaper ads are planned during our Spring Semester 1999 registration periods. Since our college is a multi-campus environment, there will be a lead faculty program presentation at our college counselors' fall meeting. Other strategies promoting an increased awareness of the AS/400 Specialization include: an advertised Open House similar to the one held last year, a professional looking brochure describing the program; membership and attendance by the lead faculty member and division chair at local professional organizations.

Implications for the Future

This partnership has brought businesses and the community much closer to the college. One of the companies now rents our facilities to offer specialized training to their own staff. These rental funds will be reinvested in the AS/400 program providing additional instructor training and/or support materials. Because of our current working relationship, these companies are opening the doors for Tidewater Community College to partner with other organizations in the areas of technology and management-related fields.

This partnership is truly on the way to becoming a Win/Win situation for business and industry, students, the college, and our local community. Area businesses that support an AS/400 computer system will benefit from a pool of well-trained applicants from which to select employees. Students enrolling in the program will know that high-paying, entry-level positions await them pending their successful completion of the program. As evidenced by the numerous articles currently appearing in both local and national newspapers, there is a lack of well-trained, high-tech employees. This program certainly addresses that issue. Tidewater Community College faculty and staff will be able to take pride in a job well done—they will be taking care of their community.

Training and Management: A Motivational Approach

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Abstract

As the days of "just doing a good job" quickly disappear, current research in the fields of cognition, learning, and training supports new methods to assist in obtaining personal commitment to classroom and organizational goals. This paper defines "commitment"; reviews current motivational models; summarizes recent relevant sutdies; and, concludes with a brief outline for planning an intervention program. This article will be of interest to persons involved in training and educational programs focused on improving individual performance supporting program success.

Introduction

A recent visit to the electronic aisles of a discount bookstore website evidenced the concern managers and administrators have for increasing employees' ability to meet organizational goals. More than two dozen books targeting motivational topics were listed as available for fast delivery. The book's titles promised answers for the major distress challenging top level managers in a changing global workplace—commitment. Commitment exhibited by an organization to an employee through maintaining a fair and safe working environment and commitment of an employee in carefully executing the goals of an organization.

Previously, research considered the issue of commitment mainly from a singular viewpoint—that of management. To the manager, a spotless attendance record, satisfactory work production, and ability to keep on schedule were the signs of employee commitment. In return, the employer awarded the employee an annual wage increase.

Today's managers continually search for motivational techniques to incorporate into the work routine in hopes of improving employee performance as the days of just "doing a good job" quickly disappear. In the meantime, books such as "Coaching for Commitment: Managerial Strategies for Obtaining Superior Performance" by Dennis Kinlaw, "Stop Managing, Start Coaching!" by Jerry Gilley and Nathaniel Boughton, or "Inspiring Commitment: How to Win Employee Loyalty in Chaotic Times" by Anthony Mendes attempted to fill these demands.

Despite the availability of these materials, many training and instructional programs failed to meet goals due to motivational problems involving either commitment to task and/or effort (Pintrich & Schunk, 1996). This paper focuses on a review of the literature dealing with behavioral expressions of commitment to task within an organizational environment which ultimately impact program success.

Statement of Problem

The survival of many training and instructional programs is dependent on the solid understanding of the factors involved in commitment. Program directors, top-level managers, and college administrators continue to seek new ways to promote program retention activities through the development of their staff's personal commitment to organizational goals. Problematic conditions develop because employees and managers may not be aware of how behavioral expressions of commitment to the organization outside the workplace or classroom (i.e. informal environments such as hallways and lunchrooms) through extra-role behaviors may covertly influence program success.

In the case of a small college offering a Bachelor of Science degree in the area of multimedia development in Pasadena, California, commitment was a major key for the success of the program. The college's student population of under 1,000 students, administrative, and instructional staff must remain committed to the success of the program's goals. As the academic quarter progresses, common tasks such as attendance, equipment, and status reports were sometimes pushed aside for either more pressing matters or, worse, distracting less important ones. The question arose: What can administrators do to increase the commitment performance of staff, instructors, and employees?

This paper will: define the term commitment; list the current motivational models utilized to explain behavioral expressions of commitment; summarize recent relevant studies on the behavioral expressions of organizational commitment found in and delimited by the ERIC and Info search databases using the keywords organization and commitment; discuss the relevance of classifying the behavioral expressions into three main categories; and, offer a conclusion of the literature. This paper also includes a brief discussion of the implications of the reviewed literature on motivation and commitment and concludes with a sketch of an intervention plan.

Commitment Defined

As research data was collected, evaluated, and categorized the definition of the term "commitment" was found to be in an evolving state. Moreover, two main requirements were stated as essential. Kiesler (1971) found that the term required some clarification. Kiesler stated "a clear and precise literary definition is often not enough. . . . Without the operational definition, which allowed us to use the concept in an environment, we cannot test the implications of the theoretical issues" (p. 25-63). Kiesler (1971) built on the previous work of Moore and Feldman (1960) who viewed commitment as "the extent to which one is committed to a job." Kiesler and Sakumura (1966) extended the definition to include a "pledging or binding of an individual to behavioral acts." Kiesler (1971) found the term commitment involved a "continuous variable, rather than a dichotomous one. That is, people were referred to as more or less committed to some behavior, rather than being simply committed or not.

Pintrich and Schunk (1996) summarizing Locke and Latham (1990, p. 125) concurred that goal commitment could be seen through the behavior of individuals. These observable actions represented "how strongly individuals were attached to the goal, how enthusiastic they were about the goal, or how determined to achieve the goal." The authors further noted the existence of a "volition element" or active choice to goal commitment in order to "spur" an individual to action. Behavioral expressions of commitment involved a two-stage process. Clark (1997) defined commitment as "the active pursuit of goals in the face of distractions" where the "primary indicator of commitment is 'persistence' over time when attractive or important (to the person) alternatives occur."

Thus, the term "commitment" was found to be in a developmental condition. Commitment involved both the individual's physical and psychological available strength to continuously and enthusiastically pledge or bind an individual entity to a larger one for the purpose of pursuing and achieving a goal. Aryee and Heng (1990) at the National University of Singapore citing Porter et al.(1974) suggested that commitment was the "relative strength of an individual's identification with and involvement in a particular organization" and concluded that commitment "not only indicates an affective response or bond between the organization and the individual but is behaviorally expressed in employee effort and willingness to stay with the organization." For the purpose of this paper, motivation will be defined as "the process whereby goal-directed activities are instigated and sustained" (Pintrich & Schunk, 1996, p.4).

Commitment Models

Over the last 100 years, commitment to both personal and organizational goals by an individual had been conceptualized and reported. Recent research in the field of motivation and commitment by an individual to a task considered the behavioral expressions within a larger work culture or organizational environment. Organizational commitment continued to be a topic of great interest and concern among top level managers and college administrators.

This interest by business leaders supported continuing research in the field. A review of those reports over the last ten years indicated the continuing development of motivational theories. Because of the variety of theories available, confusion occurred in the field when reporting results. Kingsford (1995) suggested that "inadequate definitions, narrowly-focused instrumentation, uncontrolled sample differences, and lack of knowledge of the organizational contexts being studied" led to the weak links reported between organizational commitment and employee behavior which benefits a company. Randall (1990) found that the cause of these inconsistent findings was "unknown." Randall suggested that the basic model underlying organizational commitment research may be the source of the problem (p. 362).

Blair and Price (1998) in a discussion of foundational concepts for human performance stated:

> The motivation to produce work for the benefit of an organization is best described in the research on achievement motivation and other contributing theories (e.g., goal setting, self-efficacy, and expectancy. Motivation relates to the tendency to undertake or choose a task determined by motives that characterize the individual, such as volition, confidence, and value (Pintrich and Schunk, 1996, Nygard, 1977). Social cognition and the application of attribution theory further adds to the understanding of an individual's perceptions, inferences, and interpretation of his or her environment. This cognitive representation of the individual's environment also determines achievement motivation.(p. 28)

As noted above, Blair and Price (1998) suggested a *contributory theory approach* in the attempt to provide solutions for motivational problems at work. They considered a combination of models which best supports the research observations made in the field of motivation and goal achievement. The contributory theory approach included Atkinson's model of achievement motivation originating in 1957 and refined further in 1964. Atkinson "attempted to combine the constructs of needs, expectancy, and value into a comprehensive theory." His model suggested that behavior was a "multiplicative function of motives, probability for success, and incentive value." Motives were seen as dispositions driven by the motive to succeed and the motive to avoid failure. In providing this understanding, Atkinson expanded the previous research which supported the notion that individuals in general were most likely to feel successful when they met the goals they set for themselves. He included the environmental factor based on expectancy and value constructs (Pintrich & Schunk, 1996, p. 73).

Summarizing the early research on expectancy constructs, Pintrich & Schunk (1996) noted:

> These theories and models moved motivational psychology away from a dependence on a simplistic S-R psychology to a more rational and cognitive paradigm that is

> still dominant today. Moreover, these early cognitive models of motivation stressed the importance of the individual's perceptions and beliefs as mediators of behavior, thereby focusing motivational research on the subjective and phenomenological psychology of the individual. In particular, these early models developed the distinction between beliefs about being able to do the task (probability and expectancy for success) and beliefs about the importance, value, and desire to do the task (motives, incentive value) and posited that is the combination of the two that results in motivated behavior.(p.75)

Blair and Price (1998) also noted the work of Bandura (1986) establishing a relationship between belief, behavior and outcomes such that low outcome expectations and low self-efficacy resulted in resignation and apathy whereas, high outcome expectations and high self-efficacy resulted in assured opportune actions and high cognitive engagement. A further reference was made to Clark's (1997) 2-stage general process model of motivation involving commitment or persistence to task and effort. Clark's model suggested that commitment was regulated by three components: self-agency (can I? and will I be permitted?), mood (do I feel like it?), and value (is it important to me?).

In general, models utilized by researchers in the field of motivation consider commitment from various perspectives (e.g. needs, ability, expectancy, and goal setting). Beyond the theoretical works described by Blair and Price (1998), other models were found in the literature review. For example, Meyer and Allen's (1990) Three-Component Model of Organizational Commitment. This model establishes the affective, continuance, and normative components of organizational commitment. Such that, normative commitment was observed when employee's "feelings of obligations" resulted in the employee remaining committed (e.g. socialization by the organization's culture). Affective commitment was observed in reference to the emotional attachment to, identification with, and involvement in the organization. Whereas, continuance commitment was based on the "costs" employees associated with separation from the organization (p. 15).

Most models listed emotive, behavioral, in addition to, the cognitive elements when considering what motivates an individual to behave in a positive and contributory fashion within a larger organizational climate. For example, Bower (1995) proposed that feelings or moods directly impact the decisions a person makes. Bower observed that "clearly the judgements we make depend on how the actions impact on us and how we feel about the person. But those two things are very much mixed together with how we are currently feeling. And we may have acquired our current mood or feeling for reasons totally irrelevant to the judgment at hand." Bower suggested that "people cannot override their emotions; their emotions appear to leak out in nearly everything they do. Their thinking is suffused with emotion" (p. 20). A review of this literature follows.

Literature Review

Literature obtained from the ERIC and Info search databases using the keywords organization and commitment resulted in conflicting reports not only in the definition of commitment but in its observable behaviors. For example, Randall (1990) citing Arnold and Felman (1982), Bluedorn (1982), Michaels and Spector (1982), Mowday, Koberg and MacArthur (1984), Parasuraman (1982), concluded that research often considers employee attendance or turnover as observable indicators of employees commitment to an organization. Kingsford (1995) pointed to the psychological bond which results in a more "stable" and "global" behavior and thus explanation of employee commitment. Other related research considered absenteeism, job performance, and work effort, as well as, job involvement, job satisfaction, role perceptions, work continuance, and benefits—social, economic, and emotional as expressed behavior of commitment.

Refinement of the commitment conceptualizations was called for among researching teams and stated by Hacket, Bycio, and Hausdorf (1994) after further assessing Meyer and Allen's (1991) three-component model of organizational commitment. The call for refinement was a result of the 2,301 questionnaires distributed to a national nursing association and one hundred twenty-six bus operators employed by a large municipal transit authority. In 1993, Gregersen, of Dartmouth College, looked for expressions of commitment by employees linking extrarole behavior and length of time on job and position from health care professions and administrative services in two hospitals. The study found that employees were moderately committed to displaying expressions of extrarole behaviors when involved with supervisors but showed weak behavioral expressions of organizational commitment to proximal co-workers. Gregersen reported, in contrast to Vandenberg and Self (1990), that newcomers appeared to "engage in levels of extrarole behavior comparable to that performed by respondents with higher organizational tenure" (p. 44).

In a study performed by Eisenberger, Fasolo, and Davis-LaMastro (1990) employees displayed activities of diligence, commitment, and innovation. The researchers found the behavior of employees of a manufacturing site to be influenced by perceived organizational support. The researchers reported a highly consistent positive relationship of perceived support with employee attendance and job performance ($r=-.40$, $p < .001$) and perceived support and days of absenteeism ($r=-.32$, $p < .02$)" (p. 53). Additionally, the authors noted the perceived support was positively related to innovation on the part of the employee as well as greater affective attachment to the organization and greater performance-reward expectancies.

Commitment, as the observable development of attitudes and behaviors over time that supported or "enabled the long-term and positive adjustment of those individuals to the new work environment," was tested for in a study by Vandenberg and Self (1990). Sampling 317 newly hired employees of a large southeastern banking institution, the authors, however, reported inconclusive results during the entry period of a new employee. "Simply stated, it is 'too early' to expect respondent to possess the knowledge about organizational values and principles required to judge a level of emotional attachment or to have had the time to make such investments in the organization that they must continue as a member" (p. 565).

Mathieu and Farr (1991) confirmed the prior findings of Brooke, Russell, and Price (1989) in a survey involving 194 bus drivers and 482 engineers. The survey indicated that organizational commitment was related to positive behavioral expressions as seen by job involvement and job satisfaction. The researchers found that "the correlations among the latent variables were .733 ($p<.001$) between organizational commitment and job involvement, .784 ($p<.001$) between organizational commitment and job satisfaction, and .592 ($p<.001$) between job satisfaction and job involvement for the bus drivers. In reporting the results for the engineers, Mathieu and Farr found the "correlations among the latent variables were .450 ($p<.001$) between organizational commitment and job involvement, .697 ($p<.001$) between organizational commitment and job satisfaction, and .725 ($p<.001$) between job satisfaction and job involvement" (p. 128).

During the previous year however, contradictory research findings were reported in a study involving organizational commitment and low turnover, limited tardiness, low absenteeism and enhanced job performance by Randall, Fedor and Longenecker (1990). The authors contended "that each dimension of commitment relates differently to work outcomes and that none of the dimensions is able to predict the commonly studied presence behaviors (absenteeism and tardiness). They further encouraged the examination of how appropriate expressions of commitment are developed and communicated" (p. 210).

Through a meta-analysis by Mathieu and Zajac (1990) of antecedents, correlates, and consequences of organizational commitment, observation of two types of organizational commitment emerged—attitudinal and calculative. Calculative commitment on the part of the employee was seen as the "structural phenomenon which occurs as a result of individual-organizational transactions and alterations in side-bets or investments over time" (Hrebiniak & Alutto, 1972, p. 556). The authors, citing the previous works of Mowday, Steers, and Porter (1979) and Porter, Steers, Mowday, and Boulian (1974), defined attitudinal commitment as:

> the relative strength of an individual's identification with and involvement in a particular organization. Conceptually, it can be characterized by at least three factors: a) a strong belief in and acceptance of the organization's goals and values, b) a willingness to exert considerable effort on behalf of the organization, and c) a strong desire to maintain membership in the organization (p. 172)

Unresolved issues, however, were argued by Aryee and Heng (1990) on the ability of current models to accurately predict the "antecedents and outcomes of commitment among different levels of employees in the same organization, and between different types of organizations"(p. 230).

In his paper "Improving teacher performance: Toward a theory of teacher motivation," presented at the American Educational Research Association Annual Meeting, researcher Mustafa Ozcan (1996) observes:

> People are motivated by the possibilities to earn their personal or societal interests, or to protect them from the perceived menaces . . . . Humans are cultural beings, that is they are beings with beliefs, and values, and they have the "will" to make choices. Motivated people make their decision to act, or not to act, for the kinds of action in light of their beliefs and values by considering what is in their best interests or what menaces their best interests most, what is beneficial or harmful for themselves, their families, communities, and nation, or for their students. . . . both 'interests' and 'ideas' are considered as the most important two variables behind human behavior and teacher performance as well. There is an intricate interdependence of ideas and interests, yet they are relatively independent. (p. 4)

Ozcan suggested that a model of motivation must include integrated factors not only of commitment to task but of emotions, values and effort. Citing the 1983 "Nation at Risk" report, Ozcan (1996) remarked that instructional staff, in general, were found to suffer from motivational problems which have impacted educational institutes at all levels of instruction. Programs proposing to "motivate current teachers to work hard and teach better" ranged from merit pay plans, career ladders, even "a three-tier system of teacher licensing." The attempt to increase commitment to task however "have failed" according to results reported.

Ozcan (1996) charged that "despite a century long history of the incentive programs, discovering what matters to teachers and how best to motivate them is still a complicated puzzle." He suggested that "in attempting to construct a theory of teacher motivation, teachers should be considered as human beings, employees, and also as decision making practitioners in a unique occupation." (p. 3)

In a report on the state of higher education, Sundt, Tierney, and Bensimon (1997), educational researchers at the University of Southern California, provided a focus on process in their paper "Higher Education's Agenda: A Framework for Action." The paper considered three areas requiring immediate consideration. One of the three recommended initiatives acted as a guide in creating an integrated educational system. The initiative included "creation of an incentive process for faculty that all but compels them to become actively engaged in the needs of society and its schools." Faculty must be committed to their tasks both individually and collectively to produce positive results.

Review Conclusion

A review of the literature regarding commitment by individuals to organizational goals suggested that the study of "commitment to task" by an individual within an organizational environment was essential. Commitment to task was best understood as a motivational problem. Confusion resulting from the research reports involved the operational term "commitment to task."

Conflicting results were reported by researchers in the field. The conflicting reports were based on the suggestion that researchers had not adopted a unified approach to the conceptualization of commitment, definition, and its observable behaviors (Mathieu & Zajac, 1990; Kingsford, 1995).For example, in their meta-analysis, Mathieu and Zajac (1990) noted that "attitudinal and calculative commitment are not entirely distinguishable concepts, and that the measurement of each contains elements of the other" (p. 172).Thus, the "urgent need for a conceptual framework that addresses the lack of consensus, cohesion, and integration in the field of motivation" was stated by M. Ford (1992).

Some attention was focused on the need for a environmental or contextual explanation of employee commitment beyond the "more reductionist behavior-outcome contingency models such as expectancy and reinforcement theories (e.g. Weiner, 1982). . . . This study contends that the confusing results of past studies . . . includes the use of ambiguous and overly-broad definitions and . . . little attention has been paid to the organizational contexts in which the data has been collected" (p. 2).

Common to all the conceptualizations of commitment found in the literature, however, was the desire for a singular entity (e.g. an employee, learner, viewer, user) to display positive contributory behavior to a larger entity (e.g. an organization) as a result of "commitment" to a task despite the existence of multiple commitments of varying strengths.

Important questions, however, remain unanswered. How can we understand the research findings in light of a model that provides structure for managers who desire their employees to follow through on activities that support program success? Or, in the case of the college administrator, how can instructors be motivated to perform extra-role duties on time? Further, what current model of motivation focusing on commitment to task can be adopted by program directors, top-level managers and college administrators to promote program retention activities through the development of specific behavior? And, how can this model help administrators identify and adopt specific interventions that beneficially influence staff commitment to attend to important tasks?

Implications

Insuring commitment to goals by instructors and administrative staff utilizing various motivational techniques continued to be a high priority of managers and administrators. However, the review of research literature indicated that a cohesive model of motivation, although vital and necessary, was not found. The question remained: Is it possible, considering the disparate research findings, for a manager or administrator to garner the commitment of an employee to the completion of a task?

Current research in the field of motivation supports theories that are "...concerned with how individuals make decisions about which goals or paths they will choose to pursue," and "about the direction in which they will focus their innate energy, curiosity, and activity" (Pintrich & Schunk, 1996, p. 70) The assumption that "humans are innately active learners, constantly seeking to learn and adapt to their environment"(White, 1959) complicates the motivational issues for top-level managers and administrators seeking to solicit commitment from their employees.

A review of the research implies that administrators must consider motivation as a multi-faceted issue involving the self-agency, mood, and values of not only the organization and its managers or administrators but of its personnel. There is no "one stop fix all" theory that can be applied to an organizational environment attempting to counterbalance commitment deficiencies. Rather, research in the field of motivation suggests that a customized, interactive, contextual or global model is required.

Need for an Interactive, Customizable & Global Motivational Model

Randall et al (1990) supported the adoption of a global model of motivation. The authors concluded that their research found that "each dimension of commitment relates differently to work outcomes and that none of the dimensions is able to predict the commonly studied presence behaviors." Their study emphasized the need to "use respondent-generated behaviors and to examine how appropriate expressions of commitment are developed and communicated"(p. 210).

The researchers argued that existing models provide a myopic understanding that supports an organizational description only and lacks the essential "individual expression" of commitment. This singular and narrow viewpoint prevented managers from adopting current research findings to solve practical motivational problems at work. By adopting a model which considered not only the organizational/environmental factors of commitment but the individual, insight was gained.

In the work of Allen and Meyer (1990) and the development of the three-component model (e.g. affective, continuance, and normative), the model pointed to the inclusion or interactive understanding of mood and value in the organizational makeup of commitment. The researcher's placed the individual's view of ability to perform a task as a subcategory influencing affective commitment (see also Hackett et al., 1994).

The CANE model of motivation proffered by Clark (1997) broke motivation into two factors: commitment to task and effort. Commitment to task was composed of the three multiplicative factors—personal agency, mood, and value. By applying this model to current research findings, a coherent policy of actions emerged. For example, the success of a business or educational institute was dependent on the commitment of the individual to the organizations' established goals.

Clark's (1997) model placed self-agency, the element of personal ability with organizational approval as a major factor. This shift indicated the recognition of the power and influence of individual choice. Supporting this viewpoint were Mathieu and Zajac (1990), the researchers found that "organizational commitment has been linked to several personal variables, role states, and aspects of the work environment" (p. 171).

Further, the CANE model of motivation to learn and to work considered the factors of mood and value in addition to self-agency. Clark (1997) wrote:

> In the first or "choice" stage, our decisions to make a commitment to specific work and/or learning goals is hypothesized to result from an analysis process involving three factors: 1) value (Will this choice make me more effective?). 2) Mood (Do I feel like it?); and 3) personal agency (Can I do it? Will I be permitted to do it?). As value, mood and personal agency increase goal commitment is hypothesized to increase. If self-perceptions of either value for the task, and/or mood, and/or our Self-Efficacy for tasks are negative, goal commitment is hypothesized to fail and/or persistence will be weak. In state two, estimates of self efficacy and task difficulty influence both the quantity and quality of effort invested in the goal . . . As goal familiarity decreases, effort will increase. If failure is expected, both effort and goal commitment will decrease." (p. 1)

The issue of the individual's values and mood as a key factor in organizational commitment was recognized by Mathieu and Farr (1991). In summarizing their study of bus drivers and engineers, the researchers urged that future research should be designed to "investigate the common as well as unique antecedents . . and to examine how they *jointly influence* employees' work- and non-work-related behaviors." Here,the emphasis was not only placed on the activities of the individuals' commitment prior to beginning a task at work but extended itself outside of the organizational environment. This may indicate that commitments inside and outside the established work environment perhaps influence each other either in a supporting or distracting manner.

Ozcan (1996) stated that teacher perception and performance is directly impacted by one or more categories related to physical components, organizational structure, sociological perspectives, economic factors, political considerations, cultural features, and psychological characteristics. Further, issues of job security, class size, teaching load, non-teaching duties, non-teaching time, equitable treatment, assurances, power, recognition and participation, and classroom culture and management are areas of major concern for teachers. Extrinsic as well as intrinsic values or utility are important determinants of teacher performance.

> In modern society, teachers work in organizations which operate with a set of rules and norms. The rules and values of organizations bring order and meaning to the life of the organizations. In the context of educational organizations, Johnson (1990:218) refers to this set of rules and values as bonds and classifies them as cultural and rational. . . . Values are the commonly shared ideas by the members of a social group. Teachers live as the members of various social groups and the values of these groups are influential in their behavior. Individuals hardly act against the values they believe. (p.34)

Current research in the field of motivation implied that behavioral expressions of commitment to task could be enhanced, performance problems resolved and in the case of the college administrator who seeks an answer to late reporting—an intervention program implemented. A sketch of an intervention program and concluding statement follows.

Conclusions

Commitment to task in the face of distraction is the key factor in human performance (Clark, 1998). Completion of a task is dependent on a variety of issues including:clarity of assigned task; organizational support; personal assessment and evaluation; usefulness resulting in pursuit of task (Blair and Price, 1998). Although no one answer or intervention program exists or insures commitment to task some general guidelines based on research in the field of motivation would include:

1. Provisions for the personal agency factor. Administrators must ensure that all involved receive written/oral approvals to complete the selected task. Additionally, appropriate guidelines and appropriate timetables are distributed. Administrative support (e.g. equipment, supplies, software/training, forms, timetables, etc.) to complete task are identified, approved, allocated, and distributed.
2. A collaborative environment instituted to establish or balance the mood factor. Staff and administrators must recognize the multiplicative effect of commitment factors. Like algebraic expressions, if any one factor is negative, missing, or inverted, the end result is likewise impacted.
3. Recognition and reinforcement of the utility factor. Administrators must continuously deploy and encourage a timely vigilance to promote both intrinsic and extrinsic value of the task.
4. Customization of plan to include the individual factor. What works for one may not work for another. Completion of task with alternative fulfillment strategies must be offered whenever possible.
5. Awareness and development of the individual worker—whether instructor or employee—as the human "decision making practitioner" interacting within the institution providing the supportive and interdependent environment.

In 1985, one man was committed to serving a small minority student population at a local high school in East Los Angeles

Jaime Escalante, the math teacher, believed that students would perform at the level of expectation. The students profited from his commitment to task encompassing all his personal agency, moods and values. Likewise, current businesses and academic institutes benefit from the commitment of administrators and top-level managers who go beyond doing "just a good job" by anticipating the requirements of a changing global marketplace.

Perhaps one of the most important models a manager or administrator can provide to her or his staff is persistence or commitment to a task in the face of distractions—great or small. Current research indicates commitment to task is a key factor in productivity at work both from the individual perspective as well as from the organizational point of view.

Commitment is understood to encompass more than a spotless attendance record, a satisfactory production schedule, or an annual wage increase. Today's managers must instead continually search for motivational techniques to solve commitment to task problems. Although research in the field must continue to explore the issues of definition and correlations, current understanding of personal agency, mood, and value provide a good starting place for our business and academic leaders.

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PART III
RESEARCH TRAINING PAPERS

The Delta Pi Epsilon Journal Review and Publication Processes

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Abstract

The Delta Pi Epsilon Journal uses a slightly different review process for research manuscripts, the majority of its contents, than it uses for special-feature manuscripts, the minority of its contents. When manuscripts are unconditionally accepted for publication, they are copyedited. Then they are typeset, printed, and distributed as part of an issue of *The Delta Pi Epsilon Journal*.

Introduction to *The Delta Pi Epsilon Journal*

The Delta Pi Epsilon Journal is the top-ranked, refereed business-education periodical. It retains this prestigious position among business-education publications for a variety of reasons. One of the reasons *The Delta Pi Epsilon Journal* is so highly regarded by professionals in the field is because of its blind peer-evaluation system. All submitted manuscripts except those special features solicited by the journal editor are reviewed not only by members of the editorial review board but also by the involved associate editor without knowing who has submitted them. This reviewing procedure results in manuscripts being selected for publication based solely on their merits. Another reason for the outstanding reputation of *The Delta Pi Epsilon Journal* is that its contents have a very strong research base. Valid and reliable research data support the positions expressed by authors; consequently, readers can rely with a high degree of certainty on what authors say as they provide education for and about business. Further, *The Delta Pi Epsilon Journal* is a publication outlet whose issues are filled only with the best scholarly business education-related work currently available.

Given the prominence of *The Delta Pi Epsilon Journal*, many people aspire to disseminate their best scholarly research in one of its quarterly issues. But how does this happen? How are manuscripts reviewed for possible publication? How does an accepted manuscript get into print in an issue of *The Delta Pi Epsilon Journal*?

The purpose of this article is to explain the current review and publication processes of *The Delta Pi Epsilon Journal*. While the presented information accurately depicts these processes in the middle of 1998, readers should be aware that modifications may be made to these processes whenever circumstances warrant.

The remainder of this article is divided into three sections that describe how research manuscripts, which constitute the majority of regularly printed items, are reviewed and selected for publication; how special-feature manuscripts, which constitute the minority of regularly printed items, are reviewed and selected for publication; and how manuscripts that receive unconditional acceptance are prepared for publication, printing, and distribution.

Review of Research Manuscripts

Research manuscripts submitted to *The Delta Pi Epsilon Journal* are subjected to a multiple-step review process with checks and balances. These include the editor's preliminary manuscript review, the editorial review board members' and associate editor's reviews, the associate editor's initial manuscript decision, the associate editor's re-evaluation of selected manuscripts, and the editor's final manuscript decision.

Editor's Preliminary Manuscript Review

As soon as is feasible after research manuscripts are received, the journal editor reviews them in a preliminary manner. The purpose of this preliminary review is to screen out obviously inappropriate submissions that do not meet at least most of the basic submission requirements, which are printed in each issue of *The Delta Pi Epsilon Journal* and are retrievable via the Delta Pi Epsilon web site, http://www.dpe.org. These include such basic manuscript requirements as (a) having a research base and actual data that support the findings, conclusions, and recommendations; (b) providing reliable, generalizable, and adequate information; (c) being well written and requiring minimal editing and revision; (d) having between 2,000 and 5,000 words, (e) implementing the documenting and formatting systems contained in the current edition of the *Publication Manual of the American Psychological Association*; (f) including a title page and an abstract; (g) providing brief biographical information for each author, and (h) including in research manuscripts elaboration of the findings and how they contribute to the body of knowledge being investigated, as well as recommendations for further research that would build upon and complement the reported study. Some manuscripts that are submitted for review do not address topics that are suitable for inclusion in *The Delta Pi Epsilon Journal*. Other manuscripts do not have any semblance of a scholarly scientific approach and do not merit having members of the editorial review board and an associate editor spend their time evaluating them.

When the journal editor has completed the preliminary review, he sends a letter to the first listed author of each manuscript that either rejects the manuscript outright as being inappropriate for publication in *The Delta Pi Epsilon Journal* or acknowledges receipt of the manuscript for further evaluation by members of the editorial review board and an associate editor.

Letters of acknowledgment, which are typically sent within three working days of the date submitted manuscripts pass the editor's preliminary review, indicate that these research manuscripts are being sent to selected members of the editorial staff for their independent evaluation. Letters of acknowledgment also include assigned manuscript numbers so that all author-identification information can be removed from research manuscripts before they are forwarded for further evaluation. This procedure allows strict double-blind review of research manuscripts since neither the involved associate editor nor the three chosen members of the editorial review board, who evaluate manuscripts on a rotating basis in varying combinations, know who has submitted them. Only the editor and, after manuscripts have been independently reviewed and preliminary publication decisions have been made, the involved associate editor know who has submitted and who has evaluated individual research manuscripts, and this information is never divulged to others. Letters of acknowledgment also estimate that the review process will take about three months and indicate that when that process is complete, the identified associate editor will provide the first author with information about the publication status of the manuscript.

Editorial Review Board Members' and Associate Editor's Reviews

Immediately after the journal editor acknowledges that manuscripts are being sent to members of the editorial staff for review, he prepares the manuscripts and related forms for the editorial review board members' and associate editor's evaluations. The journal editor removes all author-identification information from research manuscripts and writes the assigned manuscript numbers on all copies. Then the journal editor records each reviewer's code and the manuscript number on the appropriate manuscript-evaluation forms. Next the journal editor records the relevant information on the tracking sheet for each research manuscript, which is placed in a file along with one copy of each manuscript. The remaining four copies of the manuscript along with relevant communications and the previously prepared evaluation forms are then sent to the three editorial review board members and the associate editor selected by the journal editor at the conclusion of the preliminary review.

The four members of the editorial staff who participate in this part of the evaluation process carefully read and thoughtfully react to each research manuscript on an independent basis. As they do so, they scrutinize various characteristics of such important research-manuscript dimensions as the introduction, the review of related literature, the research design, the presentation of the findings, the interpretation and discussion of the findings, the conclusions drawn from the research, and the recommendations for business educators and for future research. They also consider such factors as the suitability of the manuscript for the target audience, the appropriateness of the manuscript documentation, and the quality of the manuscript writing.

Members of the editorial staff record their perceptions about various manuscript dimensions on Likert-type scales on the provided manuscript-evaluation forms and in narrative statements that are prepared on separate sheets of paper, indicating what in their professional judgments has been done well and less well by the research-manuscript author(s). They also offer suggestions about how the manuscript can be improved through careful revision. Some reviewers also mark comments, particularly of an editorial nature, directly on manuscript pages. Further, they recommend one of the following manuscript classifications: (a) unconditional acceptance, which means that the manuscript can be published with only minor editorial changes; (b) conditional acceptance, which means that the manuscript can be published when specified concerns are satisfactorily addressed by the author(s); (c) revise and resubmit, which means that the manuscript might—but not necessarily will—have publication potential after the specified concerns are addressed by the author(s); or (d) reject outright, which means that the manuscript should not be considered for publication because of the specified serious flaws that cannot be remedied.

Associate Editor's Initial Manuscript Decision

Editorial staff are asked to complete their manuscript reviews within one month and to forward their detailed feedback to the designated associate editor, whose job it is to consolidate the feedback from the four independent reviews and to summarize the strengths and weaknesses of the research manuscript before arriving at an initial publication-related decision. The associate editor then determines who the first author of the manuscript is by opening a sealed communication from the journal editor and writes a letter to the first author, presenting the initial research-manuscript publication decision and the related reasons.

If the research manuscript is conditionally accepted or if the first author is asked to revise and resubmit the research manuscript, then the associate editor provides the first author with detailed information about the reviewers' concerns and offers suggestions to reduce or eliminate these concerns. If the manuscript is likely to be unconditionally accepted by the journal editor, then the associate editor marks the necessary minor changes on the manuscript copy and forwards it to the journal editor for review.

Associate Editor's Re-evaluation of Selected Manuscripts

Authors of research manuscripts with either conditional-acceptance or revise-and-resubmit status are encouraged by associate editors to resubmit their thoroughly revised manuscripts to them for re-evaluation. When doing so, authors are encouraged to identify in their accompanying letters each significant reviewer concern and what action, if any, was taken to address that concern. The involved associate editor then carefully reviews the revised research manuscript to assess the appropriateness of the revisions. In some cases the associate editor may consult with the involved members of the editorial review board regarding the appropriateness of the revisions.

If the associate editor determines that research manuscripts are substantially improved by the revisions but that they are not yet ready for publication, then the associate editor will inform the first author of each manuscript of that fact and the reasons why. The associate editor exercises discretionary power in deciding whether to continue to work with the authors of manuscripts whose work is not publishable after the first revision. Assuming the decision is made to continue working with research-manuscript authors, the associate editor will again note in writing the remaining concerns about manuscript weaknesses and offer suggestions for reducing or eliminating them. Authors of such manuscripts can then thoroughly revise their work and promptly resubmit it for re-evaluation.

Editor's Final Manuscript Decision

When manuscripts have been revised to the point that they are likely to be unconditionally accepted by the journal editor, the associate editor marks any remaining necessary changes on the manuscript copy and forwards it to the journal editor for review. Should the journal editor have serious concerns about manuscripts forwarded by associate editors for unconditional approval, he will discuss those concerns with the involved associate editor, and an appropriate resolution will be sought depending on the nature of the concerns.

When the journal editor evaluates research manuscripts as being unconditionally accepted and approves them for publication, he informs the associate editor of that fact. The associate editor then promptly sends an acceptance letter to the first author of each research manuscript, informing him or her that the manuscript will be published in a future issue of *The Delta Pi Epsilon Journal*. Meanwhile, the journal editor forwards the accepted research manuscript, including any editorial suggestions, to the assistant editor for final copyediting.

Review of Special-Feature Manuscripts

Special features, including editorials, research-improvement manuscripts, and special journal issues, are subject to slightly different review procedures than the ones used for research manuscripts. Each special-feature review process for *The Delta Pi Epsilon Journal* is briefly described in the following paragraphs.

Editorials

Editorials appearing in regular issues of *The Delta Pi Epsilon Journal* are invited manuscripts prepared under the supervision of the journal editor. In consultation with the Delta Pi Epsilon executive board and members of the editorial staff, the journal editor asks well-known Delta Pi Epsilon members to prepare thought-provoking 1,000- to 1,500-word editorials on topics of interest to business educators.

After the editorial manuscripts are received, they are reviewed by one or more members of the journal editorial staff, and constructive criticism is provided to editorial writers. When editorial writers have revised their manuscripts, they send their copy to the journal editor for review. The journal editor works with individual editorial writers as necessary until the editorial copy is unconditionally accepted for publication, at which point the editorial, along with any editing suggestions, is forwarded to the assistant editor for final copyediting.

Research-Improvement Manuscripts

Research-improvement manuscripts appearing in regular issues of *The Delta Pi Epsilon Journal* are also invited manuscripts prepared under the supervision of the journal editor. In consultation with the Delta Pi Epsilon executive board and members of the editorial staff, the journal editor asks prominent business-education researchers to prepare 2,000- to 4,000-word manuscripts designed to help business educators improve certain aspects of their research.

After research-improvement manuscripts are received from authors, the manuscripts are reviewed by one or more members of the editorial staff, who provide constructive feedback to authors. When authors have revised their research-improvement manuscripts, the manuscripts are sent to the journal editor for review. The journal editor works with individual research-improvement manuscript authors as necessary until the research-improvement manuscript copy is unconditionally accepted for publication, at which point the research-improvement manuscript, along with any editing suggestions, is forwarded to the assistant editor for final copyediting.

Special Journal Issues

During the 1998-1999 biennium, there will be two special issues of *The Delta Pi Epsilon Journal*, each of which is created around a theme of interest to the readership. The Fall 1998 issue will address internationalizing business education, and the Summer 1999 issue will address innovation in business education for the twenty-first century.

Guest editors with theme-related background and interests are selected for special issues by the journal editor after consultation with members of the Delta Pi Epsilon executive board and members of the editorial staff. Each special issue of *The Delta Pi Epsilon Journal* typically has one guest editor, who is responsible for obtaining not only the research-based manuscripts but also the related special-issue editorial.

Guest editors for special issues of *The Delta Pi Epsilon Journal* evaluate the manuscript proposals that have been received in response to the issued calls for manuscript proposals, perhaps in consultation with the members of the special-issue peer-review board that each guest editor selects. Guest editors of special issues then identify the top-ranked proposals and invite their authors to submit 3,000- to 5,000-word scholarly—but not necessarily empirical research—manuscripts by specified deadlines for blind peer review.

When the completed special-issue manuscripts are received and the author-identification information has been removed, the manuscripts are independently evaluated by members of the relevant special-issue peer-review board and the guest editor. The evaluators identify the top four or five manuscripts for probable publication. Special-issue guest editors then provide the selected authors with relevant feedback, and they revise their special-issue manuscripts as needed before resubmitting them.

When guest editors are satisfied with special-issue manuscripts, they unconditionally accept them for publication in the designated special issue of *The Delta Pi Epsilon Journal*, writing appropriate acceptance letters to the authors. Guest editors also mark any needed changes on the manuscript copy before forwarding each unconditionally accepted manuscript to the assistant editor for final copyediting.

Publication of Unconditionally Accepted Manuscripts

Prior to publication of all unconditionally accepted manuscripts in *The Delta Pi Epsilon Journal*, the copy is reviewed by the assistant editor. The assistant editor engages in copyediting, an independent checking of the copy to minimize the likelihood that it contains significant errors. Among other things the assistant editor verifies that (a) the documentation within and formatting of manuscripts complies with the standards set forth in the current edition of the *Publication Manual of the American Psychological Association*; (b) the manuscripts are organized appropriately overall with the contents presented in a logical, consistent manner; (c) the writing style and language mechanics reflect exemplary standards for business-related professional writing; (d) the manuscripts are free of spelling errors; and (e) the manuscripts are appropriately keyboarded so that they can be typeset correctly.

Occasionally it may be necessary for the assistant editor to communicate directly with authors of manuscripts in order to resolve issues that arise during the copyediting process. Should major copyediting changes be necessary before the manuscript can be published, the assistant editor will communicate the nature of and the reason(s) for the changes to the manuscript author(s). When the copyediting process has been completed, the assistant editor forwards the manuscripts for journal issues to the Delta Pi Epsilon national office, which oversees the typesetting and printing.

After an issue of *The Delta Pi Epsilon Journal* is typeset, preliminary copies of the manuscripts are printed for review purposes. A copy is sent to the assistant editor, who proofreads it carefully and verifies that the manuscripts have been typeset appropriately. Any necessary changes are noted on the preliminary printed copy before it is returned for correction and incorporation into the appropriate journal issue.

After an issue of *The Delta Pi Epsilon Journal* has been printed, it is mailed by the Delta Pi Epsilon national office staff to society members and to others who have subscriptions, including libraries. The Delta Pi Epsilon national office staff also mails each author of a published manuscript three complimentary copies of the issue incorporating his or her manuscript.

In summary, *The Delta Pi Epsilon Journal* uses slightly different review procedures depending on the nature of the submitted works, be they research manuscripts or special-feature manuscripts. All unconditionally accepted manuscripts are copyedited before they are typeset, printed, and distributed as part of an issue of *The Delta Pi Epsilon Journal*.

The Delta Pi Epsilon Research Foundation

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Abstract

The Delta Pi Epsilon Research Foundation, Inc., provides funding for the advancement of business education through research grants. Funding is available for descriptive, experimental, qualitative, and developmental studies with the dollar amount varying according to the nature and type of study contemplated. The Delta Pi Epsilon Research Foundation Executive Board oversees the work of the Foundation during the biennium, and an anonymous board of reviewers makes recommendations to the Foundation concerning the approval of projects submitted for funding. Since its inception in 1977, over $130,000 has been awarded for over 40 research projects.

Nature and Scope

The Delta Pi Epsilon Research Foundation was incorporated in 1977 for these purposes: (1) to provide for the advancement of business education through research and (2) to provide grants to support and assist in such investigation, research, and experimentation. The Foundation supports studies that are descriptive (surveys as well as ex post facto), experimental, qualitative, and developmental. The Foundation does not financially support master's or doctoral studies. The amount of the grant varies depending on the type and scope of the proposed study. Partial funding may be available for projects which are partially supported through other sources.

In 1991, the Foundation was restructured to be more closely aligned with the organizational structure of the Society. This new structure provides for six directors: the Delta Pi Epsilon National President, Vice President, and Secretary; two at-large directors appointed by the Foundation Directors; and the National Delta Pi Epsilon Executive Director. The six 1998-1999 Foundation Board Directors are Peter F. Meggison, President; Marcia Anderson, Vice President; Lillian Greathouse, Secretary-Treasurer; James C. Scott; Cathy Tkacik; and Robert Mitchell, Executive Director.

Grants Available

The Delta Pi Epsilon Research Foundation, Inc., accepts applications for research funding on an on-going basis throughout the year. Grant proposals are reviewed by the Foundation Board in March-April and November of each year. Therefore, grant proposals must be submitted by February 15 and October 15 of each year in order to be considered for these respective reviews. Guidelines for developing general research grant proposals and the official application form are available from:

Delta Pi Epsilon Research Foundation, Inc.
c/o Robert B. Mitchell, Executive Director
P.O. Box 4340
Little Rock, AR 72214

The information can also be accessed through Delta Pi Epsilon's web site at: dpe.org.

Contributions to the Research Foundation from business educators, publishers, and friends of business education throughout the United States have made possible more than 40 different grants totaling approximately $130,000 since 1981. Donations to the Delta Pi Epsilon Research Foundation "in memory of" and/or "in honor of" fellow business educators are an excellent way for individual chapters and members to recognize colleagues for their contributions to business education.

In 1992, the Delta Pi Epsilon Grants Review Committee was reorganized to ensure continuity in committee membership and to achieve an orderly succession of the person who serves as chairperson each year. Thus, each of the four Committee members serves a four-year term. The fourth-year person serves as chairperson and a new member is appointed each year to replace the retiring chairperson. During any given biennium, then, two new committee members are appointed.

The Foundation Board meets four times during the biennium: twice at the annual NBEA Convention and twice at the annual Research Conference. The Board focuses its attention on fund-raising strategies and efforts, publicity efforts, grant proposal solicitation, and working with Research Foundation Chapter Liaison Representatives. The Chapter Representatives to the Delta Pi Epsilon Research Foundation educate other chapter members about the Research Foundation and conduct one chapter fund-raising activity for the Research Foundation each year.

Grant proposals funded during the last two years include:

- "International Business Education—What Should Be Taught and By Whom?" (Robert Matyska and Nancy Zeliff)
- "Analysis of Performance in Microcomputer Applications Classes" (Margaret J. Erthal)
- "Criteria for Evaluating Multimedia Instructional Courseware" (Pat R. Graves and William J. Gibbs)

- "The Replication of a Quality Process Comparing Stakeholder Opinion of Microcomputer Curriculum" (Thomas Hilton and Daniel Judd)
- "A Comparison of Ethics Education Programs in Fortune 500 and Other Businesses" (Carol Lundgren)
- "An Investigation of Business Students' Preferences for English-Language Accents" (James C. Scott, Diana J. Green, and David Rosewarne)

The "International Business Education—What Should Be Taught and By Whom?" project is a national Delta Pi Epsilon research effort and will involve data collection by all Delta Pi Epsilon members who are interested in participating.

Guidelines for Research Proposals

General Guidelines

The following are general guidelines for preparing proposals. The proposal should be brief and specific. It must be self-contained, since the review procedures do not permit a meeting with the proposer(s). The proposal should convey a clear sense of what is intended, the rationale for the research, and the methods and procedures to be followed.

- The length of the proposal will vary depending on the scope of the project; however, it should not exceed ten double-spaced pages. A one-page vita for each researcher should also be attached.
- When an application is made for renewal of an on-going project, the application must include a progress report of the work accomplished on the project to date.
- The qualifications of the project leader(s) to carry out the proposed research should be documented. This is especially important for individuals submitting proposals who have not previously received a grant through the Delta Pi Epsilon Research Foundation.
- Indirect expenses (e.g., university overhead) or funding of other expenses associated with presenting or disseminating the results of the research are not reimbursed.
- When the Foundation board approves a grant, one-third of the total amount approved for the grant will be paid to the researchers.
- An interim project report will be submitted to the Executive Director of the Research Foundation at a date to be determined by the proposal recipients. A second series of the monies awarded is then paid to the recipients.
- Upon submission and acceptance of the final report and accompanying expenses, the remaining one-third of the monies is paid. The research project should be completed within the stated period of time in the proposal. In some cases, the Foundation considers extensions when requested.
- The final report of the research completed under the grant becomes the property of the Delta Pi Epsilon Research Foundation, and it or a designee will hold the copyright. The Foundation reserves the first right to publish the final report in a manner it deems appropriate.
- The grantee(s) will be asked to sign a contract in which they acknowledge publication rights, expected reporting processes, financial responsibilities, how evaluation of the grant will occur during the time grantee(s) are completing the research, and publicity of the grant.

Specific Guidelines

The proposals should include each of the following categories, each labeled clearly and addressed clearly and succinctly:

1. Personal Information
2. Title of Research Project
3. Dollar Amount of Assistance Requested
4. Beginning and Ending Dates of Project and Timeline
5. Statement of the Problem
6. Objectives and Need for the Project
7. Type of Research
8. Methodology
9. Potential Contribution to the Field
10. Description of Human Subjects Involved
11. Research and/or Professional Experience
12. Budget Estimates for Support of Project
13. Other Funding
14. Funding for Successive Years
15. Facilities Needed

More specific details are included on the application form itself. Six copies of the proposal are submitted to the Delta Pi Epsilon National Office. An anonymous board of reviewers makes recommendations for approval to the Research Foundation Board. After the Foundation board reviews these recommendations, notification of awards, including comments of reviewers, is provided to the individual(s) submitting proposals.

Criteria for Evaluation of Research Proposals

The following guidelines are used by the anonymous board of reviewers in considering funding of proposals submitted to the Delta Pi Epsilon Research Foundation.

A. POTENTIAL CONTRIBUTION (40%)

1. Is the proposed project consistent with the mission and purpose of the Foundation?
2. Is the proposed project likely to make a significant contribution to the improvement of business education?

B. THE DESIGN OF THE STUDY (20%)

1. Is the problem stated clearly, succinctly, coherently, and in non-jargon language?
2. Are all special terms defined?
3. Is the need for the study convincingly established?
4. Does the problem include suitable limitations and delimitations in the scope?

5. Are the objectives stated clearly? Do they relate to the problem and need?
6. Are the procedures for conducting the study fully and clearly described? Are they appropriate to the problem? Are they feasible?
7. Is the approach to the problem objective and scientific? (This criterion will be reflected in such areas as sample size and sampling techniques, validity and reliability of data-gathering instruments, and experimental and statistical controls.)
8. Is appropriate review of the literature cited that shows the researcher is familiar with up-to-date readings in the field and has searched background material?

C. THE PROPOSER'S CREDENTIALS (20%)

1. Does the proposer have adequate experience or preparation to undertake the proposed project?
2. Does the proposal exhibit the proposer's familiarity with current knowledge and theory pertaining to the project so as to inspire confidence in his/her ability to execute it?
3. Is there evidence to support the proposer's commitment to the improvement of business education?

D. THE MANAGEMENT PLAN (20%)

1. Are the budgeted costs carefully worked out for all of the activities identified in the proposal? Are these realistic?
2. If the proposer is seeking partial support, are the details furnished as to how the remaining costs will be met?
3. Is the amount of support requested justified in terms of the potential contribution to the project?
4. Are the time targets for completing the various phases of the project realistic?

E-Mail: An Innovative Approach for Conducting Survey Research

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Abstract

The purpose of this training session is to examine the strengths and weaknesses of E-mail as a survey research method. E-mail presents a number of distinct advantages for survey researchers; among the most commonly noted are speed, lower costs, wide geographic coverage, favorable response rates, ease of editing, openness of responses, environmental correctness, semi-interactive nature, and a variety of response options. The most commonly reported weaknesses of e-mail are technical problems, reduced confidentiality, sample selection, need for supplemental instructions, presentation difficulties, and bias problems.

Introduction

Collecting data via surveys is not a new idea; indeed, the use of surveys can be traced back to ancient Egypt. In early Egyptian civilizations, pharaohs frequently collected empirical data to describe their subjects (Babbie, 1973). Overtime, survey methods have evolved to take a variety of forms, chiefly face-to-face interviews and mail and telephone surveys. Each of these ways of collecting data for the researcher to analyze offers a unique set of strengths and weaknesses as a data collection method (Dillman, 1978).

A relatively new and evolving form of survey research is e-mail, a communication tool that delivers computer-processed text and images to a receiver. As long as senders have the receivers' e-mail addresses, they can send messages or surveys via e-mail (Sproull, 1986; Sproull & Kiesler, 1986). Sproull (1986) notes several important characteristics of e-mail--asynchrony, speed, and text-based messages. Asynchrony refers to communication in which the sender and receiver do not communicate with one another simultaneously, which allows messages and surveys to be sent and replied to at the convenience of both senders and receivers. E-mail is fast--messages can be transmitted within seconds to virtually any location around the world. Because it is text-based, e-mail communication does not incorporate picture or sound capabilities (Sproull, 1986; Sproull & Kiesler, 1986; Thach, 1995). As when selecting any survey method, the characteristics of e-mail must be carefully evaluated to determine its feasibility for a particular project. The strengths and weaknesses of e-mail as a survey research method are outlined next and in Table 1.

Strengths of E-Mail

E-mail presents a number of advantages for survey researchers. Among the most commonly noted strengths of e-mail are delivery/response speed, lower costs, world-wide geographic coverage, favorable response rates, ease of editing, openness of responses, environmental correctness, semi-interactive nature, and a variety of response options. These strengths are detailed in the next section.

Delivery/Response Speed

Clearly, one of the greatest strengths of e-mail is the speed with which it can deliver a survey to virtually any location in the world. As Mehta and Sivadas (1995) and Thach (1995) report, sending surveys by e-mail is considerably faster than sending them via mail, for e-mail surveys may be delivered, or redelivered, nearly anywhere in the world in a matter of seconds. By comparison, a traditional postage mail survey may take two to three days to reach a destination within the United States, and surveys mailed to international locations may take seven to ten days to be delivered. Further, researchers receive virtually instant feedback on problem e-mail addresses (Bachmann, Elfrink, & Vazzana, 1996), which is especially important when surveys are targeted at highly mobile groups. This immediate return feature also allows researchers to be certain that a specific number of surveys is actually delivered (Oppermann, 1995). In contrast, researchers have to wait several weeks before an incorrect address is identified and returned through the mail, and the waiting period is even longer for surveys returned from international destinations. Indeed, Mehta and Sivadas (1995) report that the average time for return of mail surveys was about 10 times longer than the receipt of e-mail responses--two days via e-mail as compared to 21 days via regular mail. Likewise, data can be collected more quickly through e-mail responses than through face-to-face interviews; in fact, according to Sproull (1986), e-mail data were collected twice as fast as the face-to-face interviews. As Oppermann (1995) notes, the speed of e-mail is of extreme importance for researchers seeking a fast survey reply.

Low Costs

E-mail surveys have the potential to reduce material and labor costs associated with conducting research. For example, researchers can nearly eliminate the need for envelopes, ink cartridges, letterhead, mailing labels, paper, paper clips, and staples as well as postage. In addition to material fees, labor costs for photocopying or printing services, preparing address labels, and stuffing envelopes are eliminated. E-mail as a data collection method also has the potential to reduce or eliminate the need for transcribing or optical character reading steps between data collection and data analysis (Kiesler & Sproull, 1986). By reducing these material and labor costs, researchers will be able to conduct larger, more comprehensive studies, which in the past might have been prohibitive because of high costs.

Although costs are associated with online activities, educational institutions are more likely to underwrite online time fees for the entire institution than they are to support individual researchers' mail or face-to-face survey work. Even when researchers must pay for these services, the cost of online work is still likely to be considerably less than those associated with face-to-face interviews and mail and telephone survey methods of data collection. Furthermore, as Parker (1992) explains, because all preparation of documents is completed off-line, researchers need to go online only to transmit the survey, and charges are assessed only for the time spent online. Kiesler and Sproull (1986) note that the e-mail survey method may become more popular solely because of its lower costs, for finding ways to cut the cost of conducting research is vital in this era of reduced operating budgets.

Geographic Coverage

Advances in e-mail technology allow researchers to communicate easily with others in the local area or in locations around the world. Several writers have noted that because computer networks permit researchers to collect data in remote locations, e-mail is likely to become a standard survey research tool (Kiesler & Sproull, 1986; Mehta & Sivadas, 1995; Walsh, Kiesler, Sproull, & Hesse, 1992). Parker (1992), for example, used e-mail surveys in a study of AT&T employees at various locations around the world, spanning most of the time zones and was pleased with its effectiveness. In a similar survey of oceanographers, Walsh et al. (1992) submitted and received e-mail surveys from a variety of locations around the globe. The ability of e-mail to deliver a survey to virtually anyplace in the world has the potential to expand international research opportunities.

Favorable Response Rates

Overall, response rates for e-mail surveys compare favorably with those of other methods. Parker (1992) reported a 68% rate of return among AT&T employees sent an e-mail survey. By comparison, only 38% of the AT&T employees sent a survey via traditional mail completed and returned the survey. In a study of survey response rates comparing e-mail and regular mail as a delivery method, Mehta and Sivadas (1995) reported a 63% rate of return for study participants within the United States and a 65% rate of return for international participants. A record of favorable return rates offers researchers confidence that e-mail return rates will be as good as if not better than traditional survey delivery methods.

Ease of Editing

Because e-mail surveys are developed using a computer, surveys are easy to edit and revise (Thach, 1995), which is especially useful when an instrument is being pretested. Researchers can send surveys and receive responses via e-mail to a pilot group at virtually no cost and can incorporate suggestions quickly and easily. Because, the e-mail survey development process is semi-interactive, researchers can easily clarify points the pilot group makes. Using e-mail to pretest instruments is especially important when time is of the essence in finalizing a survey. As Bachmann et al. (1996) note, "E-mail can greatly enhance the dialogue during the survey construction and, consequently, strengthen the final product" (p. 35). Oppermann (1995) also notes the ease of editing follow-up surveys without having them reprinted or recopied. Further, the use of e-mail return addresses allows for ease in identifying respondents. Respondent names can then be edited from the e-mail, mailing list (Oppermann, 1995). All of these editing options help reduce the time and effort involved in the research process. Therefore, research studies may be completed in a more timely fashion.

Open Responses

Several researchers have noted the open and honest responses of e-mail survey participants (Kiesler & Sproull, 1986; Sproull, 1986; Synodinos & Brennan; 1988; Walsh et al., 1992). One reason proposed for the openness is that participants can disguise identities through the use of an alias e-mail address, which allows participants to disguise age, gender, and nationality, thus reducing the social context of traditional survey methods (Thach, 1995). Another reason for candid responses is the lack of social clues (Kiesler & Sproull, 1986). The social symbolism of status and prestige or lack thereof entwined in letterhead, postal markings, and print formats is reduced when using e-mail. As Kiesler and Sproull (1986) explain, the reduced social context of e-mail makes respondents less concerned with social norms and the impression their responses give others. Since research studies depend on the honesty of participant responses, a survey research method that elicits more open replies is highly desirable. In addition, several researchers have noted the greater detail in which participants responded via e-mail (Mehta & Sivadas, 1995; Sproull, 1995). Overall, Mehta & Sivadas (1995) report that e-mail participants tend to provide more insightful responses than do mail survey participants. Sproull (1986) explains that with e-mail, researchers may have access to information that participants would be unwilling to share via a mail survey, and these more detailed participant responses may enhance the quality of the research.

Environmental Correctness

Many universities and organizations have been seeking ways to reduce, reuse, or recycle to save natural resources. E-mail surveys, more by accident than by design, help reduce the use of natural resources by using few if any envelopes, ink cartridges, paper, paper clips, staples, and other resources that may harm the environment. As Parker (1992) notes, "Electronic mail can be deleted, but at least it will not end up in the trash can" (p. 53). Numerous university campuses are establishing programs to protect the environment and e-mail survey method can support these efforts.

Semi-Interactive

As a semi-interactive medium, e-mail has the distinct advantage of allowing participants to ask questions about the survey by using the reply function (Bachmann et al., 1996; Oppermann, 1995). Upon review of an e-mail survey, participants are free to ask for clarification regarding the survey's intent. The clarification process allows collecting data that may have been omitted by respondents because of confusing instructions or questions. Further, data collected should be more accurate after participants seek clarification. Also, semi-interactive e-mail surveys may reduce the fear of invasion of privacy that causes some participants to be reluctant respondents (Oppermann, 1995). Although Bachmann et al. (1996) and Oppermann (1995) note the semi-interactive nature of e-mail as an advantage, researchers need to be alert to the potential bias that may occur if participants interact with investigators.

Response Options

Another advantage of e-mail surveys is flexibility (Bachmann et al., 1996; Parker, 1992). Participants have the option of responding to the survey on the screen and returning the survey via e-mail or printing a copy of the survey and submitting it via fax or mail. Not all respondents may be comfortable replying to a survey when the only response option is via e-mail, so the flexibility of response options makes e-mail surveys the right choice. In the Parker (1992) study of AT&T employees, 68% of the individuals e-mailed a survey responded, and of these 28% printed a hardcopy and returned the survey as a paper copy. A variety of response options may result in higher rates of return than if the only response option was e-mail.

Weaknesses of E-Mail

Despite the strengths of e-mail research noted previously, a number of weaknesses of e-mail research need to be evaluated before beginning a study. The most commonly reported weaknesses of e-mail are technical problems, reduced confidentiality, sample selection, need for supplemental orientation/instructions, presentation difficulties, and bias problems. These weaknesses are outlined in the next section.

Technical Problems

System compatibility is a potential problem in e-mail research (Oppermann, 1995; Parker, 1992). If participants use a variety of e-mail systems, these systems must be compatible with the e-mail system of the researcher. Older e-mail systems may not offer a response function, which could severely restrict e-mail as a survey delivery method. As Oppermann (1995) explained, "Even simple text transfer is sometimes obstructed and the format of the questionnaire sent may not be the same as the one received. This reduces the availability of optical enhancements, which may have a negative impact on the response rate" (p. 30). Until the technical problems of system compatibility are solved, e-mail surveys may be limited to participants who have e-mail systems compatible with that of the researcher's e-mail system. As a result, individuals who would have responded to a paper and pencil survey may not be able to respond to the e-mail survey because of compatibility problems.

Reduced Confidentiality

Many times survey recipients are unwilling to participate or unwilling to provide honest responses because of the lack of anonymity or confidentiality. Because many e-mail systems provide the respondent's e-mail and name automatically, researchers must address the issues of anonymity and confidentiality in an e-mail cover letter (Thach, 1995). However, this issue is not exclusive to e-mail, for researchers often code paper and pencil surveys for follow up purposes and participants who responded and their responses are known to the researcher. In all cases then, because research results are limited by the honesty of survey respondents, participants--e-mail or otherwise--must be assured that confidentiality will be maintained.

Sample Selection

With e-mail as the survey delivery method, participants are limited to those who have and know how to uses an e-mail account. Current sampling frames are limited to members of organizations such as universities and larger businesses. Kiesler and Sproull (1986) stated that "The population of interest for an electronic survey will be a community or organization with access to and familiarity with computers or computer networks. These groups will tend to be relatively well-educated, urban, white collar, and technologically sophisticated" (p. 411). Until computers and networks become widespread throughout society, e-mail will not likely be useful for large, general surveys. As Parker (1992) notes, "Another constraint on conducting a survey by e-mail is that the target population has to be finite" (p. 53). Because a requirement of conducting an e-mail survey is that potential participants have and use an e-mail account, populations that meet the requirements for this delivery method presently are limited and researchers will have to be certain that they are not skewing their samples by selecting e-mail survey methods.

Supplemental Orientation

E-mail surveys may require more detailed instructions to the respondents (Carr, 1991). As Parker (1992) explains, e-mail systems tend to have inflexible keying requirements. Therefore, directions for completing and returning the survey must be in a clear and simple format. This limits e-mail surveys to those individuals who not only have an account but also feel comfortable using e-mail. Other limitations include negative feelings participants may hold toward technology and e-mail in particular. Indeed, some participants may also be uncomfortable with their abilities to complete the e-mail survey (Parker, 1992) and reluctant to ask for clarification or additional directions and thus may not respond to an e-mail survey when they would have responded to a more traditional data collection method.

Presentation Difficulties

As with traditional paper and pencil surveys, the layout and presentation of an e-mail delivered surveys is also important. Carr (1991) notes that advances in technology have made study participants more critical of format issues such as color, item location, and spacing. Although this situation is more a function of the e-mail system used by the researcher, participants may perceive the survey to be unimportant simply because of its format. Parker (1992) reported a form configuration problem resulting from a 200-line limit. Although not pleased with the approach, Parker (1992) solved this configuration problem by sending the survey to participants in in two segments. Until e-mail systems become more user friendly, researchers may have difficulty in producing a high-quality, complete survey, but as technology advances, many of the problems associated with the presentation of survey materials should decrease.

Bias Problems

Another problem with using e-mail surveys is that of self-selection bias. Walsh et al. (1992) investigated the extent of self-selection bias by distributing an e-mail survey to a random sample of users on a private network as well as sent to all members of the same e-mail mailing list on a volunteer basis. As Walsh et al. (1992) explain, those volunteers who self-selected responded quickly, provided quality responses, exhibited positive attitudes, and tended to have experience with networks. Walsh et al. (1992) propose reasons why respondents self-select participation in an e-mail survey. First, the survey is easy to access and easy to respond. Participants can simply open the message and respond. Second, respondents perceive that the survey was relevant to their profession. Participants are more likely to respond when they are knowledgeable about the topic and when respondents believe that their opinions will count. Walsh et al's. (1992) points are consistent with the findings of Schuldt and Totten (1994) in their study of marketing and MIS/CIS professors. As expected, the MIS/CIS professors were more willing to respond because of their knowledge of and interest in computer technology (Schuldt & Totten, 1994). As with paper and pencil surveys, self-selection bias may be a problem when using e-mail surveys.

Another source of bias in using e-mail surveys is the difference in computer ownership/access based on participant demographic variables such as education and income. College graduates, for example, are 2.5 times more likely to own a computer than are high school graduates. As Oppermann (1995) reports, computer ownership is not necessarily synonymous with e-mail capabilities. Because a modem is required for e-mail access, only individuals with modem capabilities can be included in e-mail surveys. Computer households with an income of more than $50,000 were 9 times more likely to be equipped with a modem than were those households with incomes less than $20,000. Clearly, computer ownership is not the only hardware requirement that researchers must consider when planning e-mail surveys. Mehta and Sivadas (1995) reported that the income and education of e-mail users is well above the national average in the United States. Because individuals must have e-mail capabilities to participate in an e-mail survey, this element too may bias the research results.

Conclusion

Like the other survey research methods that preceded it–face-to-face interviews and mail and telephone surveys–e-mail research is evolving. E-mail presents a number of distinct advantages for survey researchers; among the most commonly noted are speed, lower costs, wide geographic coverage, favorable response rates, ease of editing, openness of responses, environmental correctness, semi-interactive nature, and a variety of response options. The most commonly reported weaknesses of e-mail are technical problems, reduced confidentiality, sample selection, need for supplemental instructions, presentation difficulties, and bias problems. As more studies employing e-mail are conducted, researchers may smooth out these rough spots associated with e-mail use; however, researchers exploring the use of e-mail must always evaluate its strengths and weaknesses as a data collection method in a specific context.

Table 1

Strenghts and Weaknesses of E-Mail as a Survey Method

STRENGTHS	
Delivery/Response Speed:	surveys can be delivered or redelivered anywhere in the world in seconds.
Low Costs:	the e-mail method of data collection costs less than face-to-face interviews and mail and telephone surveys methods of data collection.
Geographic Coverage:	e-mail surveys can be delivered to locations around the community or around the globe with ease.
Favorable Response Rates:	e-mail survey response rates compare favorably with those of other survey research methods.
Ease of Editing:	being computer based, e-mail surveys and participant mailinglists are easily edited.
Open Responses:	researchers have found participants to be more open when responding to an e-mail survey than those individuals replying to a paper and pencil survey.
Environmental Correctness:	e-mail surveys reduce the need for envelopes, ink cartridges, and paper which lessens the demand for natural resources.
Semi-Interactive:	being semi-interactive, participants are able to communicate with the researcher if clarification is needed.
Response Options:	participants have several methods of returning the survey: e-mail, fax, and traditional postal mail.
WEAKNESSES	
Technical Problems:	due to incompatible hardware and software, many technical problems may occur.
Reduced Confidentiality:	participants may be reluctant to provide honest responses because of the perceived lower level of confidentiality associated with e-mail.
Sample Selection:	population and sample selection is limited to those individuals who have and use an e-mail account.
Supplemental Orientation:	aadditional instruction may be required for participants to complete and return the survey online.
Presentation Difficulties:	hardware and software limitations may make developing a high-quality survey presentation difficult.
Bias Problems:	self-selection bias is likely to taint the results of an e-mail survey.

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Enhance Your Research with Effective Graphic Design in Desktop Publishing

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Abstract

This session is designed to help participants enhance the effectiveness and attractiveness of their research by improving their graphic design skills for desktop publishing. An intereactive PowerPoint presentation with audience participation will be shown highlighting the "building block" of effective versus ineffective graphic design. Concepts include typography, color, graphics, line and direction, balance, and white space. The presentation will focus on effective charts, graphs, diagrams, table, photographs, line art, and other visuals in desktop publishing.

Visuals can improve the appearance of a publication as well as enhance the reader's understanding of the writer's message. The reporting of research in various types of traditional publications such as journals, newspapers, newsletters, magazine articles, and proceedings are no exception. The effective use and design of charts, graphs, diagrams, illustrations, photographs, and other visuals can increase the effectiveness of all types of business publications, including electronic-based media such as Web sites and presentations.

A researcher can easily produce professional-quality documents and publications with desktop publishing software and an understanding of the basics of visual design. The principles of visual design include relevance, proportion, consistency, contrast, design restraint, and attention to detail. Basic design components such as typography, alignment/ arrangement, graphics, and color should be relevant to the message. Consistent elements serve as visual guideposts to enhance the reader's understanding of the message, while contrast helps important ideas to stand out. Design restraint means avoiding the use of too many colors, fonts, and graphics.

Typography is the single most important visual element in your message. Using standard word-processing fonts such as Helvetica, Geneva, or Times Roman tends to give your documents a boring look. If possible, select a font that is tailored to a particular message; for example, high-tech, traditional, elegant, masculine, feminine, old West, Southwest, or Art Deco. You can find many, many fonts from which to select at little or no cost. However, you should avoid using too many fonts—about three different fonts is the maximum number you should use on a page. Use special effects such as bold, italics, and underline very sparingly. Fonts with serifs add tradition and solidity, while sans serif fonts are better for headlines. Avoid using shadow type or underline, as those features generally look unprofessional.

Alignment of type affects readability. Avoid type that is aligned on both the left and right margins, except in special publications such as newsletters with two or more columns. In lengthy center justified text, readers must search for the beginning of each line. Centered text is most appropriate for headlines. Flush left alignment is most appropriate for short headlines.

Technology has advanced to the point that teachers as well as authors now have the ability to enhance their work by using scanned images from magazines and other publications, clip art, and artwork imported from the Internet. Copyright infringement is a very important issue, as authors must receive permission and often must pay a royalty fee to use borrowed artwork. You should select appropriate graphics and other illustrations that support your message, not as a filler or just because an image is available. Inappropriate or poor-quality illustrations will detract from your message and cause you to lose credibility.

The term "graphics" refers to any illustration containing visual information or numerical data. Graphics may include illustrations, photographs, charts, and graphs. When selecting artwork, avoid visual cliches. Use only quality artwork, as clip art quality varies widely.

The purpose of graphics is to enhance written communication by simplifying complex information, interpreting detailed material, and emphasizing special points. Graphics can also provide a concise summary of data that are not discussed in detail in the narrative of an article. In addition, well-constructed and attractive graphics improve the overall format and appearance of a research report. Significance plus design clarity equals effective information graphics. Observe the principles of correct business communication for your information graphics such as bar charts, line graphs, and pie charts.

Basic visual composition includes balance, echoed elements, line/direction, and contrast. Line and direction are used to guide the reader's eye across the page in a horizontal, vertical, diagonal, or curving line. Horizontal arrangement is generally restful and passive or can suggest speed. Vertical arrangement is dominant, dignified, and positive. Diagonal direction is dynamic and suggests movement. Curving lines indicate beauty or movement and are often used to unify straight-line elements.

Two types of balance are formal and informal. Formal balance is a symmetrical arrangement on the page, with the focal point in the vertical and/or horizontal center. Informal balance uses the "rule of thirds," with the page intersected by two imaginary vertical lines and two imaginary horizontal lines. With informal balance, the focal point should ideally be placed at the one of the intersection points of the vertical and horizontal lines or in the middle blocks.

Don't make the mistake of trying to fill up every bit of space with text or graphics. Sometimes "less is more." The use of white space can be used very effectively to set off your focal point of interest.

Color is becoming less expensive to print than in the past. Use color for emphasis, tone, impact, and guidance. Warm colors are good foreground colors, while cool colors are good background colors. Analogous colors such as red and orange are consecutive colors on the color wheel. Analogous color schemes add a unified look to publications. Complimentary colors, which are located opposite each other on the color wheel, create more contrast. The use of cool versus warm colors can set a particular tone for a publication. Spot color can be used to add impact and create visual guideposts.

Finally, attention to detail is the key that brings all the other principles together. The visual design process must occur in several stages or layers, with the planning stage requiring a great deal of time. After the first draft is developed, every project needs to be edited at least three or four times. Elicit help from others to critique your document and take advantage of their input to polish it to a perfect finished product.

Summary

The use of desktop publishing software and an understanding of the principles of visual design can enable a researcher to produce professional-quality publications. Principles of visual design include relevance, consistency, contrast, design restraint, and attention to detail. Basic design concepts such as typography, alignment/arrangement, graphics, and color should be relevant to the message. Finally, attention to detail is the key that brings the other principles together in a unified document.

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A Framework for Selecting Data Collection Methods for Cross-Cultural Research

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Abstract

As global business activities and international educational programs expand, the use of cross-cultural research grows. Obtaining information related to economic and social needs of a nation requires a research process sensitive to various cultural elements. Adapting data collection methods for cross-cultural research must consider geographic, economic, demographic, social, political, and legal factors. These influences on the research process can result in selection and use of secondary data sources, qualitative methods, and quantitative analyses appropriate to the research environment and the informational needs of organizations. The use of methodology that carefully assesses the nature of a society, enables researchers to obtain data and develop recommendations that can provide both economic and social benefits.

The Need for Cross-Cultural Research

Global business activities create a need for organizations and educational institutions to conduct research that crosses political boundaries and cultural values. Societal needs and consumer behavior patterns for various people exist in extreme variations of buying habits, product usage, religious beliefs, and political philosophies. To appraise these situations in a meaningful manner, selection of data collection methods must be based on a society's varied social and cultural norms.

Caves (1998) notes that the "field of international business slices across the grain of areas of study in business administration." He observes that global research is needed related to strategic planning, financial decision making, marketing, organizational behavior, and human resource management. In addressing these issues, Caves points out the need for "diverse approaches and research methods" influenced by the social and business environment of a nation.

Country Factors Influencing Data Collection

Eight areas can influence consumer activities and research designs in a society:

1. **Geographic Factors.** Climate, terrain, and raw materials of a country strongly influence the availability and usage patterns of goods and services. Natural resources, agriculture products, rivers, mountains, and seaports dictate business activities and consumer needs.
2. **Economic Development.** Level of economic development persists as a driving force, and barrier, of a country's ability and willingness to participate in the global marketplace. Technology, degree of industrialization, and the country's physical infrastructure (highways, airports, communication systems) along with the stability of economic conditions influence the habits and attitudes of a country's population.
3. **Demographic Profile.** High birth rates may be a boom to a country's development, however without appropriate growth of other social structure (schools, health care facilities, and housing) difficulties may follow.
4. **Literacy.** Most observers of a society acknowledge that literacy rate influences most elements used to assess level of economic development and quality of life.
5. Mass Communication. The availability and usage of media in a society is a reflection of literacy as well as a basis for potential data collection methods.
6. **Cultural Norms.** Usually apparent to most individuals are the value differences among societies. Even within a given culture, however, a wide variety of sub-cultural norms exist as a result of religious, ethnic, or geographic factors. Cultural differences are clearly reflected in buying habits, product usage patterns, and social institutions.
7. **Political-Legal Factors.** Both political ideology and stability are significant factors in the operating environment of researchers. In addition, restrictions imposed on certain commercial activities can limit research activities.
8. **Commercialization.** Evidence exists that expanded commercialization and materialism create both a need and a desire for social service programs such as consumer protection agencies, environmental monitoring, and consumer information.

A Model for Selecting A Data Collection Method

The previously discussed factors provide the foundation for a three-stage process for determining appropriate data collection methods for various cultural settings.

In Stage 1, the researcher decides as to the type of information needed for achieving the objectives of the investigation. International information needs of organizations commonly involve three major areas involve (1) descriptions of economic conditions and data regarding population trends, (2) consumer buying and usage patterns, and (3) mental properties (attitudes, beliefs, opinions) of the society's members.

Stage 2 involves assessments of the country factors that are needed to understand the research environment of a society (see previous section). For each element, a researcher should seek out (with the use of both secondary and primary data sources) specific factors unique to the culture under consideration. A useful method for accomplishing this phase is through informal interviews with individuals who have lived, worked, or visited the country.

Stage 3 results in the selection of the appropriate data collection method based on specific geographic, economic, social, and political factors.

Common Patterns for Cross-Cultural Data Collection

As researchers select a specific data collection method, choices will relate to the main categories of secondary data, qualitative techniques, and quantitative procedures.

Secondary Data

Using previously published data sources in other societies will result from: (1) a need for data reported in a numeric format; (2) the country's reputation for scientifically-based research methods; and (3) a political environment that would make this data available. Caves (1998) points out that in most countries, data bases have limited value distinguishing between foreign subsidiaries and domestic operations. He encourages researchers to initiate and support efforts for improved government census records and longitudinal public information data bases.

When reliable and current secondary data are not available, researchers might: (1) obtain whatever demographic, economic, or other data are available, and determine if the data could serve as an indicator for desired information; (2) work with social and economic experts in the society to gather evidence regarding the validity and reliability of available sources; and (3) conduct interviews that provide insight into areas related to the investigation. For example, to collect data in Venezuela, an economist conducted informal discussions with local business people, foreign bankers in Caracas, foreign-exchange dealers, reporters, local economists, and government officials (Witcher, 1987).

Qualitative Research Methods

While usually considered exploratory in nature, qualitative techniques can provide conclusive evidence in cultures not conducive to numeric assessments. Informal observations and interviews can be the basis of studies that: (1) involve societies in which literacy rates and communication media are not appropriate for verbal-oriented research methods; (2) take place in cultures where members are suspicious of foreigners; and (3) are in environments with strong political and legal restrictions. A projective technique, for example, may be used to analyze the drawings of children in less-developed economies. Findings can reveal shifts in traditional values and influences of global business activities (Zaidi, 1979). Drawings of people could be assessed with regard to dress, physical features, work or activity, facial expression, and social roles depicted.

In other settings, small group interviews would provide insight into behavior and attitudes. This technique would be appropriate when: (1) the perceptions being sought would not be meaningful in a numeric format; and (2) cultural norms or communication facilities do not make a one-on-one interview conducive for the group being studied.

Anderson and Montero-Sieburth (1998) note that "the emergence of qualitative research in education is closely associated with the historical and political development of research in Latin American countries." This acceptance of qualitative research is, however, not without opposition as with many "science-driven" quantitative research advocates dominate this geographic region.

Quantitative Data Collection

Structured observational studies can provide strong evidence of specific behaviors when the following criteria are present: (1) researchers are not concerned with motivations or other mental properties associated with the behavior; (2) overt actions can be clearly identified and interpreted by the researcher; and (3) societal norms provide acceptance of this type of data collection.

Survey research methods that are meaningful require an environment in which: (1) translation difficulties of the data collection instrument are minimal; (2) questionnaire delivery systems are available and reliable; and (3) members of the society have demonstrated a willingness to provide valid responses. As noted by Sekaran (1983), regardless of the type of scale used to collect data regarding religion in Pakistan, the results will not be indicative of the true culture.

Expanded use of technology has influenced data collection in the areas of coding and processing of data; on-line computer-assisted interviewing; in-home systems can monitor behaviors such as television viewing and product usage; and in-store data collection related to buying patterns such as brand preference and price sensitivity. These research methods would be limited to highly developed economies with sophisticated technology, which would usually be accompanied by political and economic freedoms.

Concluding Commenets

The task of obtaining information on the needs of a society requires a research process sensitive to various cultural and economic factors. Through the use of data collection methods clearly identified as appropriate for a given culture, insight into the specific concerns of a people can be acquired. With the use of a process that carefully assesses the nature of a society, researchers will be able to address their true needs while also creating potential paths for movement to improved economic well being.

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Improving Your Professional Compositions: Writing and Editing Suggestions

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Abstract

Writing for publication in academic journals presents many challenges. This article provides writing and editing suggestions for authors seeking publications in business education journals. The addressed strategies emphasize the need for prewriting activities to maximize the effectiveness of the researcher's time and to enhance the quality of the final written product. In addition to coverage of writing and citation styles, suggestions are given for writing various parts of the research manuscript: the abstract; the introduction; the literature review; the research design; the findings; and the discussion, conclusions, and recommendations.

Introduction

This article about improving professional compositions is subdivided into two major sections: (a) writing and submitting aspects and (b) content aspects. The former section discusses the importance of prewriting activities to the development of a high-quality research-based manuscript, as well as the contributions of the documentation system, writing style, editing considerations, and submission requirements. The latter section discusses essential content, especially for empirical quantitative research articles, including the abstract, the introduction, the review of related literature, the research design, the findings, and the discussion, conclusions, and recommendations.

Writing and Submitting Aspects

Professional compositions can be improved by implementing the relevant writing and editing guidelines. Authors need to create and follow a composition plan that begins with prewriting activities and ends with the final review of the manuscript prior to submission. Too many authors begin writing immediately without a clear focus or plan. Then they have to backtrack to fulfill the requirements that are specified by the particular outlet in which they wish to publish, which is inefficient.

Prewriting Activities

Prewriting activities should include planning, thinking, and organizing. To assist with these three steps, authors can create a PREP outline that focuses attention on the purpose of the manuscript (P), the initial reader reaction to the message (R), the essential points of the message (E), and the presentation order of the message (P). Answering the question "What is the purpose of the document?" brings to mind the reason(s) for preparing a manuscript. Further, answering the question "How is the audience going to react to the message?" helps authors analyze the characteristics of the audience. Authors can then plan how they might meet the needs of their audience. Next, answering the question "What are the essential points of the message?" assists authors in determining which of the points are most important and how much detail is needed to support the essential points of the message. Finally, answering the question "How should the manuscript be organized?" assists authors in organizing the message appropriately—either deductively or directly or inductively or indirectly.

As authors move through the prewriting activities, they may also determine in which outlet they want to publish. Authors can compare the compatibility of their intended message with the nature of the outlet, the needs of its readers, and its guidelines for publishable manuscripts. Authors can obtain the publication guidelines for an outlet from the editor, selected issues of the publication, or sometimes electronically via the homepage of the sponsoring organization. For example, *The Delta Pi Epsilon Journal* guidelines for manuscripts include the following statement:

> The Delta Pi Epsilon Journal publishes articles that build the knowledge base for both business and education and that relay ways the two reinforce each other. Articles reporting sound quantitative or qualitative research are selected for publication.
>
> Manuscript reviews for this refereed publication occur on a continual basis, so you are welcome to submit them at any time.

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All manuscripts must:

1. Be research based and contain actual research data to support findings and conclusions.
2. Be reliable, generalizable, and adequate.
3. Be sufficiently well written to require minimal editing and revision.
4. Be 2,000 to 5,000 words in length. ("Criteria for Selection," 1997, p. 195)

Instructional Strategies: An Applied Research Series is also a refereed publication of Delta Pi Epsilon. Its guidelines for publication include the following points:

1. Manuscripts should be double spaced, ranging in length from 13-17 pages, 12-point font size. Authors of accepted manuscripts will be asked to provide a disk that contains the file, preferably in WordPerfect.
2. Manuscripts should begin with a discussion that sets the stage for the material that follows. This discussion should include citations presented in APA style. Following this section, the author should discuss a variety of classroom strategies/activities that facilitate mastery of the concept that the manuscript discusses. The strategies/activities should be discussed in sufficient detail that the classroom teacher can readily use them in the instructional process. Following this material is a list of helpful resources, ending with references that list the materials cited in the opening section of the manuscript.
3. The topic of the manuscript should be of interest to high school teachers as well as college instructors.
4. To avoid duplication of topics, author(s) should contact the editor of Instructional Strategies before beginning to write to determine whether another manuscript on that topic has been published recently or is being considered by another author. (Z. Quible, personal communication, September 1, 1998)

The *Business Education Forum* encourages manuscripts of 1,500 to 2,500 words to be submitted with only one article allowed per year per author. Although the *Business Education Forum* is not an official refereed publication, a manuscript submitted for publication is reviewed by a section editor and two staff editors ("How to Publish," 1998).

Other professional publications have comparable guidelines that may vary somewhat in terms of specific requirements. For example, "the *Business Communication Quarterly* is a refereed journal devoted to the teaching of business communication, which is a broad, interdisciplinary field. It is also international, and thus the journal aims to present the field from that international perspective" ("Business Communication Quarterly," 1998, p. 4). The *Business Communication Quarterly* publishes a broad spectrum of articles, including case studies, book reviews, tutorials, and discussions of issues of methods for teaching business communication ("Business Communication Quarterly," 1998).

Some professional publications such as *The Delta Pi Epsilon Journal* also have manuscript evaluation forms used by reviewers that are made available to prospective authors. If these are available, they can help authors better understand the nature of publishable articles. Such forms call authors' attention to important manuscript dimensions that must be factored into the writing plans.

Documentation System

Another factor that authors must consider early on is the documentation system that is specified by the publishing outlet. For example, manuscripts destined for publication in *The Delta Pi Epsilon Journal* should be prepared in accordance with the fourth edition of the *Publication Manual of the American Psychological Association* (American Psychological Association, 1994). Careful writers check reference citations within the text to be sure that there is a one-to-one correspondence with citations appearing in the reference list at the end of the manuscript. The reference list itself includes only sources cited within the manuscript that are retrievable. Necessary tables and figures should be constructed in strict accordance with APA standards as well.

Electronic citation style is evolving and is not covered extensively in the most recent edition of the *Publication Manual of the American Psychological Association*. Dr. Mary Ellen Guffey (1997) has written guidelines for researchers using electronic sources, and these guidelines are used by The *Delta Pi Epsilon Journal* as the authoritative guide to electronic citation formats. In addition to the APA formats, Dr. Guffey has provided a guide to electronic citation style for the Modern Language Association (MLA) documentation style. Dr. Guffey's recommendations are featured in her website, http://www.westwords.com/guffey/apa_z.html, which is updated frequently.

Writing Style

Skilled writers realize that professional writing styles vary from journal to journal and carefully consider the importance of writing in an appropriate style for the targeted publishing outlet. For example, *The Delta Pi Epsilon Journal* style is relatively formal, using third person expressions such as he or she or they to refer to the author(s). In contrast, the *Business Communication Quarterly* style is less formal, using first person expressions such as I or we to refer to the author(s). T*he Delta Pi Epsilon Journal*, the *NABTE Review*, and the *Journal of Education for Business* are refereed publications that encourage authors to write in the relatively formal style recommended in the fourth edition of the *Publication Manual of the American Psychological Association*. In the writing guidelines for all of the journals mentioned in this article, authors are asked to proofread their work carefully for grammar, punctuation, and spelling. If there is any doubt whatsoever, authors should consult authoritative sources such as the current editions of *How 8: A Handbook for Office Workers* (Clark & Clark, 1998), *The Gregg Reference Manual*, (Sabin, 1997), *The Oxford English Dictionary* (Murray, Bradley, Craigie, & Onions, 1989), *The Oxford Dictionary of American English* (Ehrlich, Flexner, Carruth, & Hawkins, 1980), and *The Random House Dictionary of the English Language* (Flexner, 1987) to ensure correct language mechanics, which facilitates comprehension of the content.

Editing Considerations

As authors polish their manuscripts, they need to keep the following ideas in mind. They need to make sure their messages are clear and easy to understand. Authors need to verify that their language mechanics and word choice are appropriate and accurate. Authors should verify that they have followed appropriate formatting specifications and used headings appropriately. Authors should check that their writing is logically and consistently organized throughout the manuscript and that the ideas flow logically from one paragraph to the next. Authors need to verify that they have sufficient supporting details that back the main ideas of the manuscript. Authors need to review their writing style carefully against the manuscript writing criteria of the targeted outlet to determine if the writing style of their work is appropriate for the targeted publication.

Submission Requirements

Various publication outlets require that authors submit different numbers of manuscript copies. Some outlets request the manuscript on disk; others, on paper. Some require that the manuscript be prepared using a specific piece of software and operating system. By complying with the submission guidelines, authors increase the likelihood that their manuscripts will not be rejected outright for publication before their messages are carefully evaluated.

Authors should accept the reality that most manuscripts they submit for publication can be improved and expect that the editors of publishing outlets will require both content and stylistic refinements before most articles are accepted for publication.

Once authors have carefully planned their writing, they can concentrate on developing an appropriate message. That message often reports empirical quantitative research.

Content Aspects

When reporting empirical quantitative research, authors should include the abstract, the introduction, the review of literature, the research design, the findings, and the discussion, conclusions, and recommendations.

Abstract

Writing a good abstract is an art in itself. Many abstracts in manuscripts submitted for publication lack specificity. Since many professionals decide if they will read an article based upon the abstract, it should be well written and present specific study findings. Furthermore, the abstract is often what is used for inclusion in online databases and as a source of keywords for indexing and retrieving the article. If many keywords are embedded in the abstract, a user's ability to locate an article will be increased (American Psychological Association, 1994). Thus, the more carefully crafted an abstract is, the more effective it will be in enticing a prospective reader.

Abstracts function as a compact yet comprehensive reflection of the contents of the manuscript. The guidelines of the *Publication Manual of the American Psychological Association* (American Psychological Association, 1994) recommend a maximum length of 120 words, the use of active voice, and the avoidance of personal pronouns in the writing.

If the manuscript guidelines require American Psychological Association (APA) format and style, the abstract for a manuscript reporting the results of an empirical study should include the following content: a one-sentence discussion of the problem that was investigated; a discussion of the research subjects that identifies characteristics or qualities such as number, gender and age; a description of the research methods, including the procedures followed to gather data and the names of test(s) or instrument(s) used; the report of findings with levels of statistical significance; and the conclusions and their ramifications for business educators and business practitioners (American Psychological Association, 1994). For journals requiring other manuscript formats and styles, the appropriate publication style handbook or manuscript guidelines should be consulted.

Even though the abstract comes at the beginning of the reporting of a study, it should be written last to ensure that the most relevant aspects of the study are included.

Introduction

The introduction sets the stage for the study. In it the authors provide background information about the subject. Sometimes too much background information does not relate closely to the research being reported. For example, authors occasionally include historical information that may appear important, but how that information relates to the conducted research is never clearly established. Authors need to supply information that provides the reasons for or justifies the need for the reported study, as well as establishes its importance. An introduction is the place the authors establish the research purpose with related hypotheses or research questions if the article is of an empirical nature. The introduction allows authors an opportunity to stimulate the interest of readers in the reported research.

Review of Literature

The review of literature provides a place where the authors can cite literature that indicates an unfulfilled need. This helps to support the need for the reported study. The review of literature also establishes a theoretical or conceptual framework for the reported study. It includes the relevant research in the subject area; similar studies in related subject areas, especially if there is little or no previous research in the identical subject area; and research relating to the employed methodology. If authors are using research approaches or techniques that are not well known or are controversial, authors can support the use of those approaches or techniques by citing relevant literature. The literature review helps to demonstrate that the authors have adequate knowledge of the field in which the research has been conducted. Of course, the literature review and related reference citations must strictly comply with the detailed documenting and formatting specifications of the selected publication outlet.

Research Design

In the research design section, enough information should be presented to enable another researcher to replicate the study. In addition, enough information should be included so that the reader can ascertain the generalizability of the results to his or her particular situation or circumstances. Such information includes answers to the following questions:

1. When was the study conducted? Without this information, the currency of the study is unknown. Studies conducted about the Internet three years ago may not have the same relevancy except perhaps on a historical basis as do studies conducted in the Fall of 1998.
2. Who or what was sampled, and how was the sample selected? Was the sample drawn from an appropriate population? Is the sample size adequate for the statistical tests that were conducted?
3. Who are the subjects of the research study? In addition to providing background information for the reader, specific demographic information about the subjects is critical. The gender, age, and educational levels of subjects, for example, are demographic elements that are normally included in research studies. If students are the research subjects, additional information such as major, class level, and educational aspiration level might be collected and reported.
4. Was a research instrument used to collect data? If the research instrument was a questionnaire or an interview protocol, was the instrument pretested or pilot tested? If testing occurred, the details of the testing should be communicated in the manuscript. Why was this particular instrument used? If a test or assessment tool was used, what are the validity and reliability statistics for this instrument?
5. If a questionnaire was used, what was the usable return rate? The usable rate of return of questionnaires should be reported as a percentage of the sample size. If follow-up measures were used, they should be described in detail. Ideally, when follow-up actions are undertaken to increase the usable return rate, statistical tests are performed to ensure that respondents from the initial mailing did not differ from respondents of later mailings. Such procedures should be described in the manuscript.

Privacy issues are of paramount importance in today's litigious society. Not every situation requires the researcher to take measures to protect the anonymity or confidentiality of research subjects. When such measures are required, they should be described in the research design section. To protect the identity of institutions, some researchers avoid mentioning the institution by name. For example, a general statement indicating that the subjects were enrolled in business communications courses at a large, urban state university in the Western United States can often suffice.

Findings

The findings section presents the data in an objective and methodical fashion. Parallel paragraph headings, parallel treatment of related items as items in a series, and enumerated paragraphs are examples of writing techniques that can be used by authors to present data in a logical, consistent manner that facilitates reader comprehension. If hypotheses or research questions have been stated in the introduction, then the data need to be presented in the findings in the same order to support or reject the hypotheses or to answer the research questions. When tables and/or figures are a part of the findings, the authors should introduce the main idea contained in the illustration, present the actual table or figure, and then provide additional relevant discussion about the illustration. Such illustrations should complement, not repeat, the text. Tables and figures that appear in articles prepared for *The Delta Pi Epsilon Journal* need to be formatted in strict compliance with the specifications contained within the fourth edition of the *Publication Manual of the American Psychological Association*.

Discussion, Conclusions, and Recommendations

Although some researchers believe that the findings are the most critical part of a manuscript, solid findings can fall flat if the discussion section is weak. The discussion section not only reiterates the relevance of the findings to business education, but also it demonstrates how the results confirm or disconfirm the findings from previous studies.

Conclusions are not simply a restatement of the findings. They do not answer the question "What?" but "So what?" Writers should demonstrate how the conclusions relate to the findings and back to the review of the literature.

Recommendations and implications, the "Now what?" of the study, should follow logically from the findings and conclusions of the study. Again, it is good practice to tie the recommendations back to the studies already presented in the literature review section. Good organization of the recommendations section is critical. For some studies, it is preferable to divide the recommendations into sections for the relevant stakeholders. For example, the final manuscript section might be constructed to present recommendations for business educators, recommendations for business practitioners, and recommendations for policy makers. Recommendations and implications for future researchers should be addressed as well.

Summary

Those who are considered to be productive scholars engage in many pre-writing strategies before preparing and submitting manuscripts for publication. Besides studying manuscript guidelines and targeting a particular journal audience, such authors actively engage in the planning, thinking, and organizing activities necessary to craft strong articles. Engaging in preparatory work up front enhances the quality of manuscripts. Continued practice of these pre-writing activities and the adoption of relevant suggestions presented in the content section of this article will contribute to better professional compositions and enhanced status as a mature business education researcher.

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Instructional Strategies: The Applied Research Series Reflecting Best Practices in Business Education

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Introduction

For the first time in the history of education, there is a body of research that addresses the essence of the education profession, namely, the effective instructional practices that make the difference in classrooms. Given that many educational research efforts have generated more speculation than valid practical applications, the consistency, generalizability, and applied nature of this body of research on effective practices are the foundation for change in education. This research demands the immediate attention of those concerned with the progressive and systematic improvement of the education profession (Hofmeister & Lubke, 1990).

Instructors are faced with a broad choice of alternative practices. Many of the alternatives offer, at best, little more than a change. In some cases the alternative may simply be a faddish step backwards. It is clear that some practices are ineffective–it is important to note that the practice (not the instructor) is ineffective. Instructors can change the impact they have on students through their selection of instructional practices.

Teachers act as researchers as they build theory concerning the specifics of their circumstances through reflection, inquiry, and action. Next, teachers act as curriculum designers based on the results of their research. Finally, they again play the role of teacher as they adjust their practice based on their conclusions from their study. The three roles are critical in the development of an instructor as researcher and classroom practitioner. Without doing the research, teachers may be inhibiting their own growth because of the myriad of experiences they will not encounter. Moreover, research makes informed decision-making possible–we know what changes to make in instruction, and we know how to evaluate the impact of the changes (Bardine, 1997).

The important question then for the education professional is not "What am I doing?" but rather "What am I doing to create learning experiences that result in positive student outcomes?" The professional business educator who makes a difference has an obligation to engage in:

1. Reviewing recommendations from the effective practices literature.
2. Comparing present practices against the recommendations.
3. Implementing changes and evaluating the extent to which the changes are consistent with the effective practices literature.
4. Reflecting on the question of "What am I doing to create learning experiences that result in positive student outcomes?"

The Instructional Strategies Publication

Delta Pi Epsilon provides leadership for business educators to bridge that gap between theory and practice in education as a framework for change in business education and for instructional improvement through *Instructional Strategies: An Applied Research Series.* This refereed publication is designed to provide information and teaching strategies for business educators on current business topics. Each article in the series focuses on a particular aspect of business education and identifies specific suggestions for teachers applying what research has identified as a best practice for the classroom. Among previous topics of *Instructional Strategies: An Applied Research Series*, which is published quarterly, are:

- *Teaching Work Ethics in the Classroom: Instructional Resources and Ideas*
- *A Framework for Teaching Computer Ethics*
- *Enhancing Communication with Effective Page Design and Typography*
- *Ideas and Resources for Implementing Peer Evaluation of Writing in the Classroom*
- *An Integrated Approach to Teaching Entrepreneurship*
- *Multimedia Presentations*
- *Portfolios: A Relevant Assessment Tool*
- *Practical Guidelines for Teaching the Adult Learner*
- *Teaching Voice Mail Concepts*
- *Teaching the SCANS Competencies in Business Education*
- *Opening Minds to the Power of the Internet*
- *Teaching Diversity and Civility*

Need for Authors and New Topics

The current editor for *Instructional Strategies: An Applied Research Series* is Dr. Zane Quible, Oklahoma State University. His e-mail address is zquible@okway.okstate.edu. Dr. Quible and his review board are always seeking input on topics which would be helpful to business educators for improvement of classroom instruction. They are willing to work with potential authors who have good ideas but are not sure how to go about putting those ideas into a written format.

Process for Manuscript Development and Submission

Typically, manuscripts begin with the discussion of the research that provides the foundation and cites the need for the Strategy (or why it is relevant), then there is a discussion of strategies/classroom activities that are useful in accomplishing the concept, which is followed by a list of helpful resources, and ends with the bibliography. Each Strategy typically involves a 12-15-17 page manuscript (double-spaced). The *Publication Manual of the American Psychological Association, Fourth Edition* should be followed for preparing manuscripts and references/resources.

Manuscripts can be submitted at any time; however, to avoid duplication on topics, Dr. Quible recommends that any interested authors contact him before doing too much work to determine whether another Strategy on that topic was published recently.

Call for Action

As education professionals, our students challenge us to reinvent ourselves, our methods, our questions, our ways of marrying practices and research. They challenge us to create the kind of discourse we need, to enable our learning and talking to work together. As Peterson (1998) stated, "we need to learn to integrate what we know as researchers into the contexts that matter in education–not only as researchers–but as parents, teachers, elected officials" (p. 4). As part of an association committed to education and learning, Delta Pi Epsilon members are ready to accept the challenge of change through their ongoing attention to research and through their use of that research to implement effective practices in business education.

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Life on the Information Super Treadmill: Teaching Students to Use the Internet for Business Research

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Abstract

The Internet has changed business research, and business students now have access to information from Web-based sources that were never as readily available in the past. However, students need to have realistic expectations as to finding, evaluating, and using information found on the Internet, the efficiency of the doing Internet research in comparison to research in traditional print and electronic sources such as periodical indexes and full-text services, and the need for a balance in using information from all formats. This paper discusses the integration of the Internet into business research for both U. S. and international business courses through course- and subject-specific Web pages and bibliographic instruction in business research.

Introduction

Since 1994 the Internet has gained in importance as a source of information in business research. Commercial publishers, trade associations, government and international agencies, and individual companies have mounted Web sites that offer full-text commentary, graphs, and statistics. However, there needs to be caution and balance in doing business research, integrating resources found on the World Wide Web with traditional print sources, such as stock services and corporate directories, and traditional electronic sources, such as electronic business periodical indexes and full-text financial databases. Business educators can develop approaches to give students realistic expectations of business research on the Internet and the need to integrate the Internet into research with other sources of business information.

Integration of the Internet into Business Research Education

The Evolution of Business Research Education

In the pre-electronic age (up to the 1970s), library instruction in finding and using business research tools usually consisted of one session with a reference librarian who acquainted students with such venerable printed sources as the *Business Periodicals Index*, Dun & Bradstreet and Standard and Poor's business directories, and stock and investment services such as Value Line. Librarians showed students how to look up information, interpret citations and directory entries, and how to locate the newspapers and magazines to make photocopies of articles. In the late 1970s things changed with the introduction on such online database services as DIALOG, Lexis-Nexis, and Dow Jones News Retrieval. In the 1980s CD-ROM-based indexes and full-text services were introduced. In the 1990s the Internet changed business research in three ways. The World Wide Web provided direct access to such primary information providers as business periodical publishers, corporations, trade associations, and government agencies. The second change came in the mid-1990s when the Internet also became the medium of delivery for subscription-based electronic databases, previously available online and on CD-ROM, such as the *General BusinessFile ASAP*, *ABI/INFORM*, and *Dow Jones Interactive*. The third way that the Internet has changed business research education is that the faculty involved, including teaching faculty and business reference librarians, are becoming Webmasters themselves, creating course- and subject-specific Web sites for their students. Thus integrating the Internet into business research education involves several factors, including:

- Conversion of print syllabi and reading lists into course-specific Web pages
- Conversion of subject bibliographies and pathfinders into subject-specific Web pages
- Making the decision as to whether to have students find business information using Web crawlers or provide them with a meta page of Web sites with hot links to business information
- Integration of the Internet into bibliographic instruction
- Teaching citation formats for electronic sources
- Evaluating students' usage of electronic sources

Converting Print Syllabi and Subject Bibliographies into Web Pages

Printed syllabi and reading lists, produced each semester by teaching faculty, can be turned into course-based Web sites with hot links to information and interactive exchanges between teaching faculty and students. Course-based Web sites are becoming more and more prevalent. A 1997 article in *The Chronicle of Higher Education* discussed the recent growth of software, known as courseware, that assists classroom teachers in putting their courses online (McCollum, 1997). There are also courseware packages, such as TopClass from WBT Systems, to convert syllabi and reading lists into Web pages. Traditional print bibliographies and pathfinders, used by business reference librarians in bibliographic instruction, can be converted into subject-based Web sites, either mounted on the course Web site or mounted independently on the library's Web site with a hot link to the course Web site.

These Web sites provide students with remote access to information, particularly important in distance-learning education, but they are also "add-ons"—additional responsibilities with little relief from the traditional functions classroom teachers and reference librarians are expected to continue to fulfill. Teaching faculty and business reference librarians who serve as Webmasters climb on an endless treadmill to keep the Web sites up-to-date—checking hot links to ensure that they are still active and adding and deleting hot links. In addition, there is more to mounting such Web sites than just converting text into an HTML format. Straight conversion of text into a Web page leaves a flat, uninteresting appearance. Internal links, graphics, and advanced features for interactive communication can be time-consuming to add, but they create more dynamic Web pages. The college or university may also have standards for Web pages as to the use of logos and links back to the institution's main Web page.

Developing Integrated Business Research Instruction Sessions

A key goal in teaching business research is achieving balance and efficiency in locating, evaluating, and citing the myriad of business sources now available to students. The standard approach is a one-session "show and tell" session with a reference librarian to acquaint students with locating and using business reference books and services. In the pre-electronic age (up to the 1970s), library instruction in finding and using business research tools usually consisted of one session with a reference librarian who acquainted students with such venerable business tools as the *Business Periodicals Index*, Dun & Bradstreet and Standard and Poor's business directories, and stock and investment services such as *Value Line*. Librarians showed students how to look up information, interpret citations and directory entries, and how to locate the newspapers and magazines to make photocopies of articles. In the late 1970s things changed with the introduction on such online database services as information providers as DIALOG and BRS, and online current awareness services such as Dow Jones News Retrieval. In the 1980s CD-ROM-based indexes and full-text services were introduced, usually updated on a monthly or quarterly basis. In the 1990s the Internet changed business research in two ways. It provided direct access to such primary information providers as business periodical publishers, corporations, trade associations, and government agencies. The Internet also became the medium of delivery for subscription-based electronic databases, such as *General BusinessFile ASAP*, *ABI/INFORM*, and *Dow Jones Interactive*.

The changes in sources of business information also changed library instruction in business research. The one-hour library instruction session now has to accommodate print sources, traditional electronic sources, and the Internet. There are two schools of thought on teaching the Internet to students. One is to show them meta crawlers such as Yahoo! and Alta Vista and leave them on their own to find information. The other is to create a meta page of hot links to business Web sites that the librarian has found to provide accurate, reliable, and current information. Many librarians have taken the approach of creating subject-specific or even course-specific meta pages with hot links to Web sites that provide business information. Either of these approaches has to be included in the library instruction session with demonstrations in accessing, searching, evaluating, downloading or printing, and citing Internet and other electronic sources in bibliographies—all in the same one-hour session.

Instruction in doing research in print, traditional electronic, and Internet sources is a great deal of information to be conveyed at one time. Such a session may include a demonstration of electronic sources in terms of accessing, analyzing, and downloading or printing data, giving guidelines for the evaluation of Web sites (e.g., accuracy, currency, lack of bias), explaining the "down side" of traditional electronic and Internet research, and citing electronic sources in bibliographies.

The "down side" for researchers using traditional electronic and Internet sources includes the Internet's lack of regulation and reliability, commercialization (previously free Web sites become subscription-based, or free Web sites become loaded down with advertising that bury information in a maze of gaudy advertisements and slower response time), and "skimming." Skimming has different meanings for electronic periodical indexes and for the Internet. In electronic periodical indexes there is usually a mix of newspaper citations, journal article abstracts, and full-text journal articles. Skimming is settling for the most easily-accessible data by printing or downloading only full-text articles and not getting copies of articles that only have citations or abstracts but may include more pertinent information. Students may overlook valuable information because it is not full-text on the computer. Skimming on the Internet is settling for summary data off a Web site without going into any depth. An example would be statistical data put on a Web page by a trade association. This data might include a few tables of manufacturing and sales data. However, many trade associations publish in-depth trade directories and statistical annuals that provide greater depth and analysis; business research and investment firms also publish in-depth company and industry reports. To overlook such resources results in only a superficial analysis. Prof. David Rothenberg has written that he has found that the World Wide Web has had a negative effect on the quality of students' papers (Rothenberg, 1998).

Evaluating the Impact of Bibliographic Instruction in Business Research

One of the tenets of bibliographic instruction is evaluating its effectiveness. The traditional methods of evaluation of bibliographic instruction include the following:

- Pre- and post-tests of students' knowledge of business-related sources (including the Internet)
- Student evaluation surveys of business research instruction sessions
- Citation analysis of the bibliographies of students' research papers

Citation analysis is the least obtrusive method of evaluation and provides data to ascertain whether the students cited sources presented in the library instruction session (St. Clair & Magrill, 1990 and Sylvia & Lesher, 1995). Business reference librarians and teaching faculty track which sources are the most heavily-used, whether the students achieved a balance in types of sources, and whether the business librarian needs to add or delete sources in their presentations, handouts, and Web sites.

Two Examples of Integrating the Internet into Business Research Instruction at the University of North Carolina at Charlotte

UNC Charlotte is a regional comprehensive university that is part of the University of North Carolina System and has approximately 16,000 students. The Belk College of Business Administration is an AACSB-accredited school that grants both undergraduate and MBA degrees. The campus is served by the J. Murrey Atkins Library. Atkins Library has a reference department with one business reference librarian. She has also created meta pages of subject-specific hot links for students to use in their research, selecting Web sites that they consider reliable and stable enough for students' research. [The international business Web site was one of the first meta pages on this subject, receives up to 500 "hits" per week, and has won awards.] In both U. S. and international business classes, students get printed copies of the Web-based pathfinders, demonstrations of electronic indexes and full-text sources, and a demonstration of the meta pages of Internet sources. Examples of the pathfinders and subject-based Web pages for both U. S. and international business can be found at the UNC Charlotte library Web site. The Web sites for U. S. business and economic information and international business and economic information can be found on a gateway Web page at the following URL: http://www.uncc.edu/lis/library/reference/subbus.htm.

Whenever possible the business subject specialist does an analysis of the bibliographic citations of students' research papers to evaluate what students are actually using in their research, whether sources demonstrated in the library instruction session were used, and what additional sources students have located that should be included in future bibliographic instruction sessions. Since 1995, when citation analysis began, the students have routinely cited Internet sources in their bibliographies. The business librarian also contacts the professor to ask if there are any areas that need to be improved (e.g., more information on industries or less emphasis on one particular source or subject).

U. S. Company and Industry Business Research

One of the classic business research assignments is to have students select a company and its industry, do an analysis of the company that includes several years of financial data (including stock information), describing the present state of the company and its industry, and predicting the company's and industry's future (Welch & King, 1997). Examples of such an assignment are Kodak and the photography industry and Goodyear and the tire industry. A typical instruction session would include a discussion of the following:

- Print sources (e.g., *Value Line* and *International Directory of Company Histories*)
- Electronic business periodical databases (e.g., *General BusinessFile ASAP* and *ABI/INFORM)*
- Electronic full-text financial databases (e.g., *Compact Disclosure* and *Moody's Company Reports* (available via *Research Bank Web*))
- Business-related Web sites (e.g., Web sites of individual companies, trade associations Web sites for industry-wide information, and U. S. government Web sites that provide statistical data on products, services, and industries, such as those from the Department of Commerce)

The bibliographic instruction sessions include distribution of printed copies of the Web-based bibliography of traditional print and electronic sources, arranged by subject areas (e.g., directories, stock services, financial ratios). Students are also informed that handouts on citations formats for electronic sources are available at the reference desk.

International Business Research

The classic international business research projects are marketing a U. S. product in a foreign country and analyzing a foreign country as a potential site for U. S. investment. A typical instruction session would include a discussion of the following:

- Print sources (e.g., *Investing, Licensing and Trading Conditions Abroad* and consumer marketing statistical publications, such as *Consumer Europe*)
- Electronic business periodical indexes
- Electronic full-text databases (e.g., *National Trade Data Bank* and *WorldScope*)
- International business-related Web sites (e.g., Web sites from foreign governments, international agencies, and commercial publishers)

As with bibliographic instruction for classes doing research on U. S. companies and industries, a print copy of the international business Web site of print and traditional electronic sources, arranged in such categories as country information and exporting, is distributed, and the availability of handouts on citation formats is also mentioned.

Conclusion

The Internet has revolutionized business research education. Once teaching faculty and business reference librarians decide to integrate the Internet into their courses and library instruction, they are getting on a treadmill that never ends. Developing and maintaining course- and subject-specific Web pages, identifying useful business-related Web sites, integrating the Internet into bibliographic instruction, and giving students realistic expectations of the role of the Internet in business research are the challenges that we now face.

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Problems and Opportunities Associated with the Use of On-line Surveys as a Method for Data Collection

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Abstract

The internet as a medium for survey research presents a rich opportunity for researchers. Respondents are obtained over the Internet from a variety of databases or via traditional contacts. Survey instrument design, sampling problems associated with using the Web for business and marketing research, and incentives to increase response rate will be covered.

Introduction

With the ever increasing access to the Internet and easy to use Browsers, more and more people are getting on the World Wide Web (WWW). This medium presents a rich opportunity for marketing researchers. In fact, specific languages have been developed to allow clients to access documents and transmit data back to servers based on information viewed in the document. That is, marketing researchers can design electronic surveys that can be accessed, completed, and returned in a matter of minutes. At present, there are companies that provide this design service for fees of under $500 (Stein, 1996). One such company, Cyber Dialogue, reports a number of advantages: speed, cost effectiveness, broad geographic scope, accessibility, and tracking ("Uses of online," 1997).

There are several instrument design and sampling problems associated with using the Web for marketing research. Our training session will focus on these issues.

Design Issues

Screen Design

Designing an on-line survey instrument is not simply a matter of duplicating and converting a questionnaire prepared with a word processing program. A web-based questionnaire must be able to work and look good in several computer platforms and operating systems (Liegle & Madey, 1997). In fact, there are many variables that can affect the appearance of an on-line survey instrument. Some of these factors are screen size, screen resolution, the HTML version, and the type of web browser. Each of these variables will be discussed in our training session.

The screen size and screen resolution determine the amount of information that will be displayed across the screen. A web page developed on a large monitor is reformatted when displayed on a smaller monitor. One possible solution to this problem is to design the page for the smallest monitor size (Liegle & Madey, 1997). An alternative solution is to format the page using Tables.

Similarly, the effect of the use of different Browsers on the appearance of the on-line survey questionnaire is important. Since each Browser was designed to support a different version of the HTML standard, a well-designed survey instrument on one Browser may appear be poorly designed on another Browser. This is due to the fact that each Browser formats the HTML document a little differently and each may not support all the features of the HTML language that was used when the form was designed. For instance, some will support extensions to the HTML language with commands or tags that are not part of the HTML standard. We will discuss ways around this problem. Hermann (1996) suggest that multiple web pages be designed: one for Browsers that support the latest HTML enhancements and one for Browsers that do not.

Data Input

One of the most important features of the HTML language for creating on-line catalogues and surveys is the Form function. The Form function has the capability of changing the data based on user input. A web page client can complete the survey form using text boxes and text areas, clickable buttons and pull down menus. However, these alternative methods of data input complicate the issue of measurement scaling. That is, care must be taken when converting nonmetric data input for statistical analyses that require metric data. This issue will also be discussed in our training session.

Receiving the Results

The HTTP protocol is "stateless." This implies that the developer must make some accommodations for receiving responses. There are two methods of receiving a response to the questionnaire. One method, the GET method, sends the encoded data to the server appended to the Uniform Resource Identifier (URI).

The other method, the POST method, transmits the data after the request headers have been sent to the server. The advantages and disadvantages of these approaches will be enumerated.

Once data is transmitted to the server, it can be routed to the appropriate person via e-mail using the "mailto" feature of the HTML language. This is the simplest method to implement, but it does have its disadvantages. For example, the responses are in the form of an e-mail message with data delimiters and it is difficult to import this into an appropriate database for statistical analysis. In addition, not all servers support the "mailto" feature. The "mailto" feature will also transmit the e-mail address of the respondents, unless they use anonymous e-mail. This could be a disadvantage since some individuals may be reluctant to complete the survey (truthfully or not) if they know they can be identified by their e-mail addresses. Privacy guarantees may be important not only to retain validity of the research but also to protect respondents (Cooper & Schindler, 1995). However, from the researcher(s) perspective, the verification of respondents can be simplified, alleviating possible response error due to multiple survey completions by the same person(s).

If, however, the survey instrument is developed as a CGI program, the data is stored in a file on a server that can be easily imported into a database. This requires significantly more programming work when preparing the survey instrument. There are, however, numerous examples of appropriate CGI programs that are available on the Internet, which we will discuss in our training session.

Sampling Issues

Probability versus Nonprobability Designs

One of the most critical problems associated with web-based marketing research is the practical impossibility of probability sampling. However, there are many examples of the use of nonprobability sampling designs that do provide valuable insight and information. All sampling does not have to be probability based to be meaningful to its host, and most researchers understand the limitations of nonprobability based research designs. Carefully controlled nonprobability sampling often provides acceptable results (Kish, 1965). Our discussion will review some of the problems associated with nonprobability based designs and provide suggestions for interpreting results.

On the other hand, some researchers are interested in the population of internet users. Researchers at Georgia Institute of Technology (Kehoe & Pitkow, 1998) recently published a paper about their experiences as web survey researchers. Their experiences, as well as the experiences of others, will be shared.

Response Rate Issues

Although counters can be installed to record "hits," counters do not distinguish repeat from unique visitors, nor do they reflect whether or not a page is allowed to fully load into the Browser. For example, what prevents "ballot stuffers" from padding the data sets with repeat participation? This issue presents interesting opportunities for multiple method survey administration to permit only one "entry" with a randomly preassigned password. In fact, there is much argument in favor of the multiple method survey administration approach which invites respondent participation through "snail" mail, telephone, or e-mail, and then accepts completed surveys over the web (Smith, 1997).

Some on-line survey sampling pitfalls which were highlighted in BYTE Magazine (1996) will be debated. Control over access to surveys in public areas can be avoided by inviting respondents to participate via e-mail or other means and providing some unique identification name/password (McDaniel & Gates, 1998).

An interesting and practical issue related to web-based surveys is whether or not incentives can be used to influence response rates. For example, we know that response rates in marketing research that uses "snail" mail are affected by the type and value of the incentive offered to the participant (Bachmann, Elfrinck, & Vazzana, 1996). The question for web-based marketing research is whether or not these same incentives can influence response rates over the web and, if they can, which ones produce the greatest improvement in response. We will discuss the research findings reported in this area and propose several interesting experiments that can be conducted to test the response value of alternative incentives.

Characteristics of the Population

Finally, we will discuss our findings as they relate to the research that has been reported about the demographic and psychographic characteristics of web-users. At issue is whether of not "web-users" are a homogeneous segment or whether they are as diverse as the general population. If, for example, we learn that "web-users" are a fairly homogeneous segment, then it becomes easier to justify the generalizability of research findings. Implications for validity will be presented.

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Using the Critical-Incident Technique for Research

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Abstract

This training session contrasts the assumptions and purposes of quantitative versus qualitative approaches to research. The Critical Incident Approach will be examined in depth as an example of a qualitative approach to understanding office work requirements. The interview process will be examined, followed by coding themes using sample interviews. Data analysis techniques will be illustrated using sample data sets. Finally, an approach for drawing conclusions from critical incident data will be discussed.

Introduction

As the workplace and the educational setting become more complex, educational researchers must consider employing a variety of research methodologies that will properly capture the types of information and data needed to address the educational problems of today and of tomorrow. By applying a variety of methodologies, the business education researcher is better able to produce research that is more meaningful and valuable.

This paper will focus on one of the several methodological tools available to researchers, the critical incident technique. The critical incident technique is a tool used in qualitative research to capture the complexity of job behavior in terms of the social job context. A background perspective is presented here to help frame the distinction between the worlds of quantitative and qualitative research methods, with particular reference to job analysis research. Following the development of important concepts and the presentation of defining terms in qualitative research, techniques for conducting critical incident interviews will be covered. Issues related to the coding process and the data analysis process will subsequently be addressed. Finally, the process of drawing inferences from the assembled data will be examined.

Quantitative vs. Qualitative Approach

Research methods generally fall into two broad categories: quantitative and qualitative. These two categories of research methodology are not alien to each other; in fact, aspects of each are routinely practiced by virtually every researcher (Hillison, 1990). In the last few years, the philosophical debate of qualitative versus quantitative research has begun to shift to a belief that a synthesis of the two approaches is superior to either one alone. This philosophical shift is illustrated in the AVERA presidential addresses given by Hillison (1990), Finch (1993), and Moore (1992) wherein the use of a combination of both quantitative and qualitative types of research inquiry was advocated, with the research problem dictating the methodology or combination of methodologies to be employed. Each approach having its strengths and weaknesses, the advantage of one over the other will depend on the purpose of the research.

Quantitative research has it roots in the scientific method derived from the physical and biological sciences. Quantitative research has been labeled as conventional, traditional, or positivistic research (Borg & Gall, 1989). Traditionally most of the research in education has been quantitative. In quantitative research, the researcher seeks explanations and predictions that can be generalized from a sample(s) being studied to the population(s). The main role of a quantitative researcher is to maintain objectivity by remaining neutral when observing and measuring and by taking care not to contaminate the data through personal involvement with the research subjects. Careful sampling strategies and experimental designs are aspects of this approach that are aimed at producing generalizable results. Great care is taken to avoid extraneous influences on the groups studied in order to ensure reliability and validity, and to strengthen the predictive capabilities of the phenomena being studied (Glesne & Peshkin, 1992). Quantitative research takes the form of descriptive, survey, explanatory, correlational, causal-comparative, experimental, or quasi-experimental (Ary, Jacobs, & Razavieh, 1990). Examples of data collection techniques include: surveys/questionnaires/interviews, observations, tests, and use of extant data.

The qualitative approach to research evolved from the social sciences. It is often referred to as naturalistic inquiry, ethnography, subjective, case studies, fieldwork, field studies, participant observation, or postpositivistic inquiry (Ary, et.al., 1990; Borg & Gall, 1989). In qualitative approaches, the researcher's main objective is to obtain a deep and detailed understanding about a specific group. The ultimate goal of qualitative research is to portray the complex pattern of the entity or process being studied in sufficient depth and detail so that one who has no experience can gain an understanding (Ary, et. al., 1990). This type of research can produce vivid and richly detailed accounts of human experience (Ary, et. al.,1990). Qualitative inquiry seeks to understand social behavior from the "insider's" perspective, whereas, quantitative inquiry uses an "outsider's" perspective (Ary, et. al., 1990; Glesne, & Peshkin 1992).

The overall approaches employed by the quantitative researcher differ from those of the qualitative researcher. The first difference is in the area of generalizability. For the quantitative mode of inquiry, the purpose is generalizability, prediction, and or causal explanations; whereas, the goal for qualitative is contextualization, interpretation, and understanding subjects' perspectives (Glesne & Peshkin, 1992). Another difference deals with the inferential method employed (deductive and inductive). The quantitative method uses a deductive approach that begins with hypotheses and theories of the phenomena to be investigated and with precise definitions (Ary, et. al., 1990). In qualitative research, on the other hand, the themes and the definitions emerge as the study develops (Ary, et. al., 1990). A third difference is that the quantitative approach uses data that are reduced to numerical scores; whereas, the qualitative approach draws on narrative description (Fraenkel & Wallen, 1996). The validation process also differs: quantitative research uses a variety of procedures with reliance on statistical indices, whereas, qualitative research uses cross-checking (triangulation) (Fraenkel & Wallen, 1996). The fifth area of differences is that quantitative researchers prefer *a priori* criteria for deriving inference and qualitative researchers do not (Borg & Gall, 1989). The selection of participants for the study also differs in that the quantitative researcher generally demands random samples and the qualitative researcher prefers expert informant (purposive) samples (Fraenkel & Wallen, 1996).

The main data collecting methods used by qualitative researchers are participant observation and in-depth interviewing. Answers to certain types of research questions can best be obtained by observing how people act or how things look. When using observation as a data-collecting tool, the researcher's role can range from one of a full participant in a group to a complete observer where the subjects may or may not realize that they are being observed (Fraenkel, 1996). For some educational studies, researchers have use nonparticipant observations because a more objective, perhaps unbiased, record can be obtained (Borg & Gall, 1989).

The second data collecting method for qualitative research is the interview, which is a powerful tool for determining what people think or how they feel about something. Interviewing strategies consist of informal conversational interviews, interview guides, and standardized open-ended interviews (Fraenkel & Wallen, 1996). Skills needed by the qualitative researcher include the ability to negotiate access to a field site, to establish and maintain trust with participants in the study, to conduct and record interviews and observations, to manage data, and to perform data analysis (Ary, et. al., 1990)

The critical incident technique, a qualitative approach, employs the interview method to obtain "an in-depth analytical description of an intact cultural scene"(Borg & Gall, 1989, p.387). According to Gay and Diehl (1992), behavior occurs in a context, and an accurate understanding of the behavior requires understanding the context in which it occurs. For example, the culture of an organization can have a direct influence on the behavior of the employees. Therefore, having an understanding of that culture can lead to a better understanding of the employees' behavior. As a result, qualitative methodology is an appropriate method for understanding real-world job settings. The critical incident approach, in particular, is an appropriate tool that can be used to analyze jobs in the social context in which they occur.

Approaches to Job Analysis

Currently, there are at least three fundamentally different approaches that can be used to analyze job requirements in a work context so educational programs can be developed to prepare future employees (Bailey & Merritt, 1995). One is the Skills Component Model, a task-analytic approach to describing job duties, tasks, skills, and generally broad competencies (Bailey & Merritt, 1995). The second is the Professional Model, a professionally oriented, more holistic approach that seeks to understand job requirements in specific work settings or social contexts. It also has the goal of identifying job competencies for employment preparation, but it is less likely than the task-analytic approach to assume that general skills and competencies can be taught separately from specific work contexts (Bailey & Merritt, 1995). The third approach, the General Components Model, differs from the first two in that it is intended to extend beyond the requirements of a single job category or occupational group. Developers seek to use descriptions of broad job requirements for curriculum development appropriate for all students, not just those preparing for employment in a given occupational area. Such models have been particularly influential as various government bodies seek to establish educational standards and possibly assessment instruments to apply comprehensively to American school systems. Such standards unavoidably affect curriculum-planning efforts of all teachers, including business educators. Their initial impetus comes from economic arguments linked to international competitiveness and higher educational demands in "high performance workplaces" (Bailey, 1990).

Skills Components Model

As a task-analytic approach, the Skills Components Model can briefly be summarized as based on the following assumptions about the work setting: limited worker roles; focus on dispositions; focus on job tasks; generic or academic skills as a foundation for specific tasks; higher skill means performing more tasks; and managers/supervisors have control. Work settings supportive of the Skills Components Model have been characterized as Tayloristic in their orientation to work and supervision. Planning and control reside in the manager, and precise instructions are provided to workers who carry out repetitive procedures under close supervision. Time-and-motion studies may have been the basis for decisions about the most efficient work practices.

Tools that are used for carrying out Skills Components Job Analysis are DACUM (Develop A Curriculum), Functional Job Analysis (FJA), and V-TECS (Vocational-Technical Consortium of States). The DACUM process, originally developed in Canada, is facilitated primarily by educators and was developed as a way of bringing business and industry into the developments of employment-related curricula (Norton, 1993). The DACUM model is considered to be a simplified version of the Functional Job Analysis (JFA) model used to develop over twelve thousand job descriptions in the *Dictionary of Occupations Titles* (DOT). Like the DACUM procedures, the V-TECS (Vocational-Technical Consortium of States) process has been extensively used to develop vocational curricula. V-TECS produces task-based output such as duty and task lists; performance objectives for each task; standards expressed as an observable measure of performance; and sequential task performance steps. V-TECS outcomes also include enabling competencies and related academic skills, basic essential skills taxonomies, criterion-referenced test item banks, and performance/psychomotor items (Wills, 1993).

In assessing the effectiveness of both the DACUM and V-TECS models, and also the FJA model used for the *Dictionary of Occupational Titles,* Bailey and Merritt (1995) consider the most significant disadvantage to be the focus of each model on dissecting work-based activities into component parts, which leads to instructional materials that are highly task specific. The consequence is that most job analysis methods, by breaking down jobs into their specific component parts, may reduce worker roles to a series of unrelated job functions.

Professional Model

The Professional Model of job analysis is used to capture the complexity of jobs on "high-performance" organizations where workers have more discretion in their jobs and more responsibility for planning and problem solving. While the importance of specific skills is still dominant, responsiveness to the application of those skills in specific work contexts demands flexibility not present in "traditional" organizations with highly supervised work. In contrast to the Skills Components Model, Bailey and Merritt (1995) describe the Professional Model as based on the following assumptions about work: knowledge base; ideal of service, work as situation specific; proactive, nonroutine behavior; specific skills as a foundation for more complex problem solving; and high-performance workplace requiring broader worker authority.

The tools available for Professional Model Job Analysis are generally more complex than those used for the Skills Components Model, since the intent is to look at jobs more broadly and to incorporate the social context of which they are a part. Some of the Professional Model job analysis tools include the following: Position Analysis Questionnaire, Hays Associates Profile System, Critical Incidence Technique, Occupational Analysis Inventory, and O*NET (Occupational Information Network). The **Critical Incident Technique,** which is the focus of this paper, is used to capture a more holistic, qualitative picture of work requirements by collecting hundreds or even thousands of critical episodes/events that illustrate effective and ineffective job-related behaviors.

The other approaches listed above, the Position Analysis Questionnaire, Hays Associates Profile System, Occupational Analysis Inventory, and O*NET (Occupational Information Network), are large-scale, often commercially developed systems for job analysis. Because of their complexity and cost of administration, they appear not to have been used often in educational settings to establish links between employment expectations and school curriculum.

While the Professional Model has the promise for greater focus on the social context of work within a given organization, it is weak in generalizability. Professional job descriptions are necessarily tied to a particular firm with a history that is as important to job description as specific technical skills. An alternative has been to describe job requirements that are both more general than those resulting from use of the Professional Model and less task-oriented than those derived through use of the Skills Components Model.

General Competency Model

The General Competency approach uses a different perspective from the Skills Components Model or the Professional Model. It focuses on the generic skills or traits that are needed by individual persons and not necessarily on the tasks found in a particular occupation. Several products of this new job analysis approach carry the names of the SCANS skills (Secretary's Commission on Achieving Necessary Skills, 1991), New Work Skills (Resnick & Wirt, 1996), Work Force Basics (Carnevale, et al, 1990), and Generic Skills (Stasz, McArthur, Lewis, & Ramsey, 1990).

In summary, business education has depended largely on the first approach, the Skills Component Model (job task analyses), to describe needed job competencies and derive educational program requirements. However, particularly because of the need to respond to the dynamic nature of increased use of computing technology in business offices (and elsewhere), job competencies are being viewed more broadly. The Professional Model can serve as an alternative, more holistic work analysis procedure. The critical incident technique can function as an important tool in gathering events that are rich in work requirements.

Also the critical incident approach compliments the task analysis information.

The Critical Incident Approach

Use of the critical incident technique (CIT) has recently been identified as among the job-analysis tools which are most likely to capture a more holistic and professional-oriented description of work-place requirements (Bailey & Merritt, 1995; and Merritt, 1996). The technique allows for the capture of employees' interpretations of their work settings. CIT is "an epistemological process in which qualitative, descriptive data are provided about real-life accounts" (Di Salvo, Nikkel, & Monroe, 1989, p. 554-555).

The critical incident technique was developed by John Flanagan (1954), and his now famous article, "The Critical Incident Technique," is considered by the Society of Industrial and Organizational Psychology to be the most frequently cited article in the field of industrial/organizational psychology (American Institutes for Research, 1998). The CIT is an outgrowth of studies done in the Aviation Psychology Program of the United States Army Air Force during World War II. Flanagan was faced with the problems of improving military flight training, bombing missions effectiveness, and combat leadership. On a large scale, he systematically asked trainees and veterans to describe exactly what they had done successfully and unsuccessfully with respect to a designated activity. Later, Flanagan formalized this process and defined it as a method of identifying critical job requirements. The process involves collecting factual stories or episodes about behaviors which are crucial in making the difference between doing a job effectively and ineffectively (Flanagan, 1954; Zemke & Kramlinger, 1982). The American Institutes for Research (1998) defines CIT as a "set of procedures for systematically identifying behaviors that contribute to the success or failure of individuals or organizations in specific situations." According to Zemke and Kramlinger (1982), the critical incident technique is not an appropriate job analysis tool for every job. It is appropriate for jobs that have a flexible or undefinable number of correct ways to behave.

The structure of CIT involves: (1) developing plans and specifications for collecting factual incidents (e.g. Determine from whom the information is to be collected. Determine method of collections. Develop instructions about the collection), (2) collecting episodes/critical incidents from knowledgeable individuals, (3) identifying themes in the critical incidents, (4) sorting the incidents into proposed content categories, and (5) interpreting and reporting. The data can be collected from observations or from viable self-reports, e.g. interviews. The classification and analysis of the critical incidents are the most difficult steps because the interpretations are more subjective than objective (Di Salvo, et.al., 1989).

The Critical Incident Technique has been used recently in a long-term project of the National Center for Research in Vocational Education to understand leadership development in vocational education (Finch, Gregson, & Faulkner, 1991; Lambrecht, Hopkins, Moss, & Finch, 1997). The approach of asking jobholders to provide in-depth descriptions of specific events in order to gain an understanding of thoughts, feelings, and behaviors has also been called the "behavioral event interview." With this label, it has been the research technique used to examine the higher-order critical thinking skills used in banking (Bacchus & Schmidt, 1995) and to examine teachers' roles in the integration of vocational and academic education (Schmidt, Finch, & Faulkner, 1992). Schmidt, Finch, and Moore (1997) have continued to use this qualitative research approach to examine professional development programs for teachers to facilitate school-to-work transition. They describe the use of this technique as follows:

> The critical-incident technique was used to stimulate interviewees' descriptions of professional development activities that helped teachers to meet students' school-to-work needs. Interviewees were also asked to describe the best school-to-work practices teachers had used, including those where they interfaced effectively with employers. The critical-incident technique was again used to help interviewees focus on describing examples of teachers' best practices. (Finch, Schmidt, & Moore, 1997), Appendix A.)

For the Delta Pi Epsilon (DPE) National Study, "Organizational Socialization and Adaptation: Learning the Ropes in the Workplace by Primary Computer User," the critical incident approach was utilized to determine those factors that influenced successful assimilation into the workforce for primary computer users (Lambrecht, Redmann, & Stitt-Gohdes, 1998 In Press). The critical incident technique was selected as the most appropriate tool through which to gather data relevant to the purpose of this qualitative research project. This technique allowed for the capture of employees' interpretations of their work settings and was a method which could be used consistently by a national group of data collectors.

Preparing for the Critical Incident Process

The critical incident interview techniques described here are based on the approach used in the above DPE national project conducted by the authors. This section will describe the steps taken before the actual interviews were conducted. As mentioned above, the first step in the CIT process involves developing detailed plans and specifications for collecting factual incidents. The following types of decisions need to be made: (1) What is the purpose of the investigation, (2) From whom should information/data be collected? (2) What is the most appropriate method to use? Observations? Interviews? (3) What questions should be asked? (4) Who should collect the data? (5) Should the data collectors receive training on how to conduct the interviews? (6) What instruction(s) need to be developed for collecting the data? (7) Should details about collecting the data be provided to the data collectors in written form?

The Purpose of the Investigation

As in any research effort, the investigator first must identify questions to which answers are sought. For the above DPE national project, the investigators wanted to gain a greater understanding of the influence of employee, socialization, and organizational adaptability on workplace learning within the office setting. For other recent projects which have used this practice, the purposes have been to obtain examples of effective leadership from the subordinates of recognized leaders (Finch, Gregson, & Faulkner, 1991), to obtain examples of developmental experiences from persons identified as exemplary leaders (Lambrecht, Hopkins, Moss, & Finch, 1997), or to obtain examples of professional development practices from practicing teachers (Schmidt, Finch, & Faulkner, 1992).

Determining the Subjects/Respondents

A formal definition of the subjects/respondents to be observed or interviewed should be developed that will maximize useful information that is relevant to the purpose of the investigation. For the above DPE national project, primary computer users were identified as the subjects to be interviewed. The investigators defined primary computer users as employees in an information processing area of the firm using a desktop computer for more than 50 percent of job responsibilities.

Determine the Methodology for Collecting the Data

There are basically two data collecting methods that can be used in a critical incident approach: observations or in-depth interviews. The observation approach is useful with overt (observable) behavior, but is not appropriate for covert behavior, e.g. decision making. If the observation approach (made in-person or videotaped for later observation) is used, the role of the observer has to be determined. On a continuum, this role can range from full participation in a group to the role of a complete observer where the subjects may or may not realize that they are being observed (Fraenkel & Wallen, 1996).

If the interview approach is to be employed, the researcher has the option of conducting either face-to-face or telephone interviews. The advantages of using the in-person interview is that it allows the interviewer to read or react to non-verbal communication and to probe for in-depth responses. It is highly recommended that the interviewer tape the proceedings. By audio taping the interview, the researcher can monitor interviewer reliability by examining the questioning process used by the interviewer. The DPE national project chose the face-to-face interview as the means for collecting critical incidents about how primary computer users learned their jobs.

After deciding the means for collecting the data, the next decision involves who should collect the data: the researchers themselves or a team of trained interviewers. This decision will be based on the scope of the project. For a large-scale national project, a team of trained interviewers is very appropriate. In order to engage as many DPE chapters in the DPE national study, the project investigators elected to use a national team of interviewers who were recruited from two national conferences: the Delta Pi Epsilon National Research conference and the National Business Education Association conference. The project staff required the interviewers to tape the 30- to 60-minute interviews, using a 90-minute cassette tape. The interviewers mailed the tapes to the project staff, who in turn transcribed the tapes. The transcribed interviews were returned to the interviewers who shared them with the interviewees in order to allow the respondents to check the transcripts for accuracy and completeness.

Determining the Questions to Ask in CIT

The questions used in the CIT process should be of the type that ask the persons who are familiar with the situation being analyzed to provide examples of *incidents* that are *critical* to successful and unsuccessful performance. These incidents are usually anecdotal accounts of events that have actually occurred. The interviewee is asked to describe the incidents in terms of (1) the circumstances preceding the event, (2) what exactly was done and why was it effective or ineffective, (3) what was the outcome or result of the behavior, and (4) whether the consequences of the behavior were under the employ's control (Siegel & Lane, 1987, p.91). The critical incidents can be revealed in response to the following examples of probes: "Describe what led up the situation." "Exactly what was done that was especially effective or ineffective?" What was the outcome or result of this action?" "Why was this action effective?" (American Institutes for Research, 1998). The DPE national study employed the following questions to guide the face-to-face interviews:

1. Describe as many critical/significant/important experiences that are examples of what you *do well* in your current job.
   a. Why do you feel competent?
   b. How did you learn to do this?
2. Describe as many critical/significant/important experiences that are examples of *problems* in your current position that you could not solve quickly on your own.
   a. What do you do when you have a problem?
   b. What resources do you use when you have a problem?
   c. When do you or have you felt incompetent and why?
3. What experiences would you *like to have* that would have helped you or could help you to become more competent?

Instruction/Training for CIT Data Collectors

To ensure consistency in the data collection process, it is recommended that a detailed set of procedures be developed that would outline the following kinds of information and/or steps: (1) the purpose of the research, (2) the target subjects to be interviewed, (3) concise definition of the subjects to be interviewed or observed, (4) the interview process, (5) steps for gathering the data, (6) interview techniques/tips, (7) respondent demographic information sheet, (8) interview questions, and (9) sample letters to interviewee/respondent from the interviewer.

If the research study is on a small scale and the researchers are primary responsible for conducting the interviews, it may not be necessary to have training for the data collectors. However, if several data collectors will be employed, it is highly recommended that some form of training be provided. The training can range from simply covering the basic steps of the interview process to critiqued role playing activities. To ensure consistency, it is also recommended that the data collection process be provided in written form.

Using the Critical Incidents Interview Technique

The interview is a powerful tool for gathering information because it is flexible, it can enlist active support from the interviewee, and it can provide more information than just words that can provide a multi-dimensional picture, e.g. non-verbal communication (Rossett & Arwady, 1987). While the interview is an excellent means for learning about the problems or situation, it is a tool that challenges the interviewer. The interviewer can not control the interviewee, nor does he or she want to for fear of misdirecting the flow of information. It is also difficult for the interviewer to change the interpersonal style to match the inclinations of the respondent, e.g. the respondent may use a random spontaneous approach or a holistic approach (Rossett & Arwady, 1987). The success of the interview can be enhanced by pre-interview preparation. For example, if the interviewer has an interview agenda and knows the purpose of the research, the interview process should go along smoothly. Also the interviewer should be prepared to address typical questions from the interviewees: Why they were selected to be interviewed? How will be results be used? Will the responses be kept confidential?

To prepare the volunteers who served as interviewers for the DPE national project, an instructional booklet, entitled "Procedures for Conducting the Interviews," was developed and given to the interviewers. It was designed as a comprehensive guide for conducting the interviews. The purpose of the research project was provided along with an overview of the interview process and the criteria to use in identifying subjects to interview. Ten steps for gathering the data were detailed, which included the recommendation of using a 90-minute cassette tape. The section on interview techniques/tips consisted of steps for (1) preparing for the interview, (2) beginning the interview, (3) conducting the interview, and (4) concluding the interview. The interviewer was instructed to make copies of the demographic information sheet and the interview questions sheet for each interview. To ensure that all the questions were asked during the interview, the interviewer was asked to place a check in the blanks to the left of the questions. Four sample letters to the respondent/interviewee were provided: (1) letter for scheduling/confirming interview, (2) thank you letter for interview, (3) transmittal letter for transcript, and (4) thank you letter for return of transcript.

Interview Techniques/Tips

The following sections list suggestions for conducting successful personal interviews, either in person or via telephone. These CIT steps are derived from the above-described interviewer's instructional booklet designed by the DPE national project investigator. These sections range from the pre-interview activities through the follow-up activities. The sample letters developed by the project staff are in the Appendix section of this paper.

Pre-Interview Activities

1. Know the purposes for this interview.
2. Develop an agenda or interview guide that you are comfortable with that incorporates the interview questions required by the project. Use an agenda that helps to establish a relationship with the interviewee that will encourage the respondent to give you the information that is needed. The agenda will help you to track your progress through the interaction.
3. Study the purpose of the project and learn enough about the computer user to ask intelligent questions and respond to inquiries. Learn the local language, review and/or learn basic vocabulary related to respondent's job. Admit you are not an expert.
4. Schedule the interview with sensitivity and flexibility. Schedule a time and place which will enhance the likelihood of getting the desired information. Such a place usually means privacy, quiet, comfort, no distractions, and compliance with the interviewee's wishes for a location and a time.
5. Ethics demand that the interviewee's permission be obtained before a tape recorder is used.

Beginning the Interview

1. Be on time with your visit or call.
2. Since the first moments of the interview are crucial, the initial task for you is to create an atmosphere that will put the respondent at ease. Be aware of your communication style, work on building a trusting relationship with the interviewee, and work on removing tension. Do not start the interview with a joke or a reference to a recent movie. To build rapport, to enlist willingness to corporate, and to clarify the purpose of the meeting, explain who you are and how you came to get involved in this research project. Then explain the purpose of the project, its potential impact, why they were selected, and approximately how long the interview is anticipated to last. When explaining the purpose of the interview, avoid giving too much information that could bias the study.
3. During the introduction, allow the interviewee to ask any questions. It is during this phase that you are establishing a rapport with the interviewee.

4. When you move out of the introductory phase of your interview into the heart of the inquiry, let the interviewee know by using a transitional phrase: "Now that you have heard about me and the purpose of the project, let me give you a chance to ask a question . . ." After the question/answer period, use a transitional phrase that informs the interviewee that the interview is beginning: "Let's talk about your job and the challenges and successes you have experienced in learning your job . . ."

Conducting the Interview

1. The success of the interview will depend on asking the right questions, hearing the answers, and recording what the interviewee says.
2. The purpose of the interview is to get details about exactly what they do which makes it work for them. Allow the respondent to dominate the conversation, which means at least 80 percent of the time.
3. Refrain from expressing approval, surprise, or shock at any of the respondent's answers.
4. The structure for your interview will be open as opposed to structured/forced choice. You are to use the open-ended questions provided on the "Interview Questions" sheet which will allow the interviewee to structure their responses in the manner that best meets their needs. The open-ended questions should encourage free-flowing conversation.
5. It is important to listen carefully to the respondent's answers so that you will know when to ask your next question. Note: Sometimes the respondent may answer more than one question with his or her response. Therefore, check the blank on the list of questions when the item has been addressed.
6. Questions can be repeated or their meaning explained in case they are not understood.
7. Pay attention to the tone of voice and watch for body language.
8. Use prompts to keep the interviewee on track or to encourage the interviewee to say a lot or little:
   "Tell me more about . . ."
   "Can you think of a specific example of that?"
   "What did you do then?"
   "What makes you say that?"
   "I don't understand what you mean there. Could you explain it in another way."
   "Whatever you can remember is fine."
   "Take your time; I'm just going to give you some time to think."
9. Rephrase what a person just said for clarification and to keep the conversation going.
10. Record the entire interview, starting with the introduction through the conclusion.

Concluding the Interview

1. After you feel all the questions have been answered, begin the conclusion phase of the interview.
2. During this concluding phase, allow the interviewee to ask any questions and to make any comments.
3. Try to provide a verbal summary of what the respondent said as it relates to the purpose of the study. This can be a means of clarifying what has been said and promote a common understanding of the incident described.
4. Compliment the respondent's replies regarding their usefulness to the project.
5. Discuss how the interview contributes to the success of the project.
6. Establish an opening to come back to the respondent for additional information.
7. Inform the interviewee of the next stage that involves their review of the transcript.
8. Determine whether the interviewee prefers you to mail the transcript or for you to return in person with the transcript.
9. Express your and the project's appreciation of their contribution.

Coding Themes in the Interviews

This provides a guideline for coding the themes that emerge from the transcribed interviews. It will discuss how the themes are developed, how inter-rater agreement is reached, and how the information from the interviews is entered into a coding sheet.

Theme Development

A pre-determined set of open-ended questions are usually developed to guide the interview. As a result, the transcribed interviews yield a wealth of information from which the researcher must be able to develop categories in order to make meaning of the data. While admittedly there are any number of ways to develop categories, a convenient macro approach is to begin with the interview questions themselves. Flanagan (1982) reminds the researcher, though, that, "The preferred categories will be those believed to be most valuable in using the statement of requirements" (p. 299). As the DPE national study has been referenced earlier, that example shall continue to be used in this section. The DPE study attempted to determine what effected and affected a primary computer user's organizational adaptability. That purpose required the researchers to determine when current employees felt competent, when they felt incompetent, and what additional training they desired. The frame of reference or primary theme development centered around those skills and abilities relevant to the interviewees' work.

Again referencing the DPE national study, the initial frame of reference was the interview questions: What do you do well? How did you learn how to do what you know? What problems arise in your work? What resources do you consult to solve the problems? When do you feel incompetent? What additional experiences do you desire that may improve your performance? What other roles might you pursue either in this organization or another? As those interviewed spent at least 50% of their time using a personal computer for their work, the frame of reference relevant to these questions focused on computer use.

"The induction of categories from the basic data in the form of incidents is a task requiring insight, experience, and judgment. Unfortunately, this procedure is . . . more subjective than objective. . . . the quality and usability of the final product are largely dependent on the skill and sophistication of the formulator" (Flanagan, 1982, p. 300). As the lead researcher in the DPE national study was the most experienced in both work-based and qualitative research, she agreed to develop the initial categories or codes. In this process, she read 11 of the 65 transcripts. Based on a careful analysis of the transcripts, an extensive literature review, and related research experience, she developed 67 codes for the 7 interview questions.

At this same time, the other two researchers were also reading the first 11 transcripts. The initial code list was distributed amongst the researchers for their review. This procedure is advocated by Flanagan, "One rule is to submit the tentative categories to others for review" (p. 300). As a part of this process and subsequent conference calls, six codes were added making a total of 73 theme codes. At that time, prior to all 65 transcripts having been read, the initial list of codes was adopted. Thus, **all** three researchers read **all** of the first 11 transcribed interviews.

The development of these initial codes leads to the next step, reaching inter-rater agreement.

Inter-rater Agreement

Clearly, one's life experiences influence one's perceptions. Thus, when more than one individual is undertaking such a research project, it is critical to both the value of the research and the validity of the process that inter-rater agreement on the codes be reached. This may be done in a variety of ways: face-to-face; telephone conferencing; via paper mail. For the DPE national study, the researchers chose two approaches: a face-to-face meeting and a series of telephone conference calls. After all researchers had read the first 11 transcripts (17% of the total, 65), they met to discuss the original 67 codes and to develop consensus on these codes. This process took about two days of conversation, analysis, and revision. At this time, a process was developed for reading and coding the remaining 54 transcripts. It was agreed that the next step to assure inter-rater agreement was that **all** transcripts must be read by two of the three researchers.

It was decided that as the transcripts were read, that the number assigned to each code would be written in the margin of the transcript. This facilitated conversation during the conference calls. Once all these transcripts had been read, during conference calls the researchers reached consensus, or inter-rater agreement, by literally going through every page of every one of the remaining 54 transcribed interviews.

Once this tedious transcript coding process was complete, the next step was to enter the coded data onto a code sheet.

Using a Code Sheet

With the use of spreadsheet software, a code sheet was developed. On the top row, each of 65 the interview numbers was listed. On the left column, each of the seven interview questions was listed with all the 73 codes appropriate to the category listed underneath. Each of these codes was numbered, with a gap between each of the seven major categories, allowing for expansion. When a code appeared in a transcript, a mark was recorded in the appropriate cell on the spreadsheet. It is important to note that once an incident, or code, was noted, no additional marks were recorded for that code. The reason for this is that the purpose was not to determine the number of times the incident occurred, but rather that it occurred at least once in an interview.

Once again, in order to assure accuracy in coding, these code sheets were compared during a number of conference calls. This provided an additional level of inter-rater agreement.

An important item to make note of deals with establishing the **titles** of the codes. Flanagan (1982) notes that "The titles should convey meanings in themselves without the necessity of detailed definition, explanation, or differentiation" (p. 300).

The use of the coding sheets in this way can also facilitate later data analysis. Should one wish to quantify the data, e.g., x% of participants indicated x code. This may be useful in presenting macro information as it relates to research questions that frame the study.

Inter-rater agreement is key to the value of the research because of the total subjectivity of qualitative research. It provides assurance to both the researcher as well as the consumer of the research that every effort was made to communicate the accurate meaning of the information gleaned from the interviews.

Data Analysis Techniques

The purpose of data analysis of critical incident interviews is to understand the commonalties among the responses. Common themes among the responses need to be summarized so that dominant or common themes can be identified. There are several software packages designed specifically for this purpose. Such programs as NUDIST and Ethnographer are popular. Miles and Huberman (1994) provide extensive discussion of what such programs can do. For the purpose of this workshop, the data analysis procedures used in the national DPE research project (Lambrecht, Redmann, & Stitt-Gohdes, 1998 In Press) will be used as an example. The primary criterion used to select a spreadsheet and a standard statistical program, Systat, for the analysis was in-depth familiarity with these packages in terms of the purposes for analyzing the themes from the critical incident interviews.

The purpose of the analysis of themes from the critical incident interviews was to rank order their frequency of occurrence and to identify themes that were occurring together frequently within the same interviews. In order to do this, a decision needs to be made about the unit of analysis—a single theme or an interview. A theme can occur more than once within a single interview, so if themes are chosen as the unit of analysis, their frequency of occurrence will affect the rankings. If a single interview contained several examples of a particular theme, each of these occurrences would affect the frequency of mention of this theme—perhaps given a single interview a disproportionate amount of weight. To avoid this, the interview (or interviewee) can be considered the unit of analysis. A theme occurring several times within one interview would be counted only once per interview. In this study, the interview was considered the unit of analysis. Each theme coded in all of the interviews was coded within a spreadsheet as occurring, or not, within each interview or for each interviewee.

Given that the interview is taken as the unit of analysis, the following sections use the recent national DPE Research Project to illustrate three stages of analysis. First, an illustration is provided of how the data were prepared for analysis. Second, the results will be shown from using a spreadsheet to calculate frequency ranks for the themes within each major question. Third, a procedure will be shown for using cross-tabulations to identify commonalties across interviews.

Data Preparation

Table 1 shows part of the spreadsheet used for the coding of both demographic features and theme occurrence. Notice that each interviewee is a row within the spreadsheet and the demographic characteristics and themes are the columns. The categories in each demographic area (only portions of which are shown below) are coded by number to permit tallying in the spreadsheet. For example, a "5" in the "Job Title" category for interviewee No. 1 means "Data Entry." These codes are maintained in a codebook so that the report summaries can be linked back to the meaning of the codes. Each theme is identified by a number from 1 to 73 (only portions of which are shown below), and a "1" in a cell means that the theme occurred within the interview. Again, the codebook records the theme and its code number so that later reports report the themes, not the codes. (Table 1 is on the next page.)

Theme Frequency

Once the interview codes have been entered into the spreadsheet, it is a simple matter of counting and sorting to answer the question about frequency of occurrence of the various themes. It is possible to identify the most commonly occurring theme within each major category of theme type. The following Table 2 (Table 12, Lambrecht, Redmann, & Stitt-Ghdes, 1998 In Press) shows the presentation of work-related problems for the 65 primary computer-users from the national DPE research project.

Commonalties Across Interviews

A second question that can be raised about critical incidents is about the commonalties among interviews, or whether certain themes tend to appear in the same interviews. Table 3 shows that cross-tabulations can help to illustrate visually the number of pairs of themes that occurred in the same interview. In this case the themes are those which arose from asking, in the recent national DPE study, what primary computer-users did well (14 different themes) and where they learned whatever it was that they did well (12 themes). Notice that the 65 interviews are the unit of analysis. Each cell shows the number of responses on a particular theme that occurred in common from these 65 interviews. For example, Theme #7, a response to "What work was done well?" is the response "Producing high-quality, accurate work." This theme appeared in a total of 23 interviews. Theme #21, a response to the question "Where did you learn what you do well?' is the response "Informal, on-the-job training/observation/picking things up." This theme appeared in 46 interviews. A total of twenty interviews contained both of these themes.

These cross-tabulations were obtained by transferring the spreadsheet data partially illustrated in Table 1 into a statistical analysis package with the capability of preparing cross-tabulations and carrying out Chi-square analysis. Such software is quite common. Systat was used in the recent national DPE research study, but programs such as SPSS or Statistix are also common. Once these data have been cross-tabulated, Chi-square analysis permits the identification of theme clusters that occurred more frequently than would be expected by chance. When this type of analysis is carried out on qualitative data, care must be taken not to give the impression that generalizations can be made to a larger population. This is not inferential statistics. Rather, the Chi-square calculation is being used to provide descriptive information about clusters of themes within interviews that may aid in understanding what these themes mean for the specific group of primary computer-users interviewed.

In Table 3, the cells with bold print are those for which a Chi-square value had a probably of .10 or less of occurrence. These are the common interview themes that need to be examined more closely.

Table 4 is an illustration of the Chi-square analysis for the two themes mentioned above, #7 and #21 from Table 3.

The next challenge for researchers is how to present this information in a way that truly summarizes the data and does not overwhelm readers with numbers. There are 168 separate Chi-square analysis behind Table 3 above, only 9 of which were statistically significant. It would probably not be helpful to provide

Table 1
Spreadsheet

	Demographic Information						Themes									
ID No.	**Sex**	**Age**	**Job Title**	**Years/ Position**	**Years/ Work**	**Educ.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	1	2	5	2	3	1							1			
2	1	2	1	1	3	1	1									
3	1	1	4	2	3	1		1								
4	1	3	4	1	3	2		1							1	
5	1	1	3	1	2	1	1			1			1	1	1	
6	1	1	2	1	0	1		1				1	1	1		
7	1	2	6	1	3	4		1		1	1	1			1	
8	1	3	6	3	0	4		1								
9	2	2	6	2	2	4		1		1			1	1		
10	1	1	5	1	2	4		1								
11	1	1	6	1	3	4							1			1
12	1	1	3	1	2	2	1	1			1		1		1	
13	1	2	1	2	3	3		1								
14	1	1	6	1	3	3	1	1					1			
15	1	4	5	2	3	4	1									

Table 2
Problems encountered — Response Category and Rank Order

Category	Number of Responses	% of 65	Rank Order
Technical problems: software versions; system down; transcription issues	36	55%	1
Depending on other people for information/work/support	20	31%	2
Using new software	18	28%	3
Getting accurate information	11	17%	4
Dealing with workflow—pressure versus slack	10	15%	5
Lack of experience	9	14%	6
Knowing expectations	6	9%	7
Prioritizing work from several people	2	3%	8
No problems	1	2%	9

Table 3
Cross Tabulation of Themes Across Interviews

Cross Tabulation of Ques 1a (Do Well) with Ques 1b (How Learned)

							Themes								
1.a - Do Well -->	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Total**
1.b - How Learned															
Themes **21**	20	33	7	9	2	14	**20**	10	10	5	6	11	2	1	**46**
22	6	11	3	6	3	4	5	5	3	1	2	3	0	0	**14**
23	13	21	3	7	4	8	11	6	9	2	2	4	0	1	**23**
24	2	5	0	2	1	2	2	0	2	0	0	0	0	0	**5**
25	14	**21**	4	8	3	5	9	6	6	3	1	5	0	0	**24**
26	**18**	24	4	6	1	9	12	**9**	4	3	5	**11**	2	0	**32**
27	3	2	0	2	0	2	3	1	3	0	1	1	0	1	**5**
28	2	4	0	2	0	3	4	2	3	0	0	1	0	1	**5**
29	14	20	4	7	2	9	10	6	6	2	5	9	0	1	**26**
30	2	6	2	3	2	3	2	1	3	0	0	0	0	0	**7**
31	8	12	**5**	3	2	5	**8**	**6**	5	1	2	5	1	0	**15**
32	13	24	**6**	8	2	7	13	7	7	0	2	8	1	1	**30**
Total	**29**	**47**	**8**	**14**	**5**	**16**	**23**	**12**	**13**	**5**	**8**	**16**	**3**	**1**	**65**

Table 4
Chi-Square Analysis Example

	#21 – Informal, OJT		
#7 – High Quality Work	No	Yes	Total
No	16	26	42
Yes	3	**20**	**23**
Total	19	**46**	**65**

Pearson Chi-Square =4.509; df = 1, p = 0.034

a table like Table 3 in the research report. It does not even contain the complete identification of the themes! If only the 9 significant cross tabulations are reported elsewhere, along with their names, how can the relationships be shown? The marginal totals are important to understanding the significant cross tabulations; the marginal totals show the total number of interviews that contained each theme. Nine tables like Table 4 above would not provide the synthesis needed. The individual Chi-square tables provide too much detail. Using percents is one way to report the frequencies of common themes across interviews without presenting a table dense with numbers.

Table 5 (Table 18 in Lambrecht, Redmann, Stitt-Gohdes, 1998) is an illustration of how this was done in the DPE national study being used as an example. The results of each significant Chi-square table are reported in a single row. In addition, the ranks of each theme are shown for the two questions reported in this table: "Work that was Done Well" is being compared with themes from the question "How did you learn what you Do Well?" The percents reported for each theme are the proportion of interviews (remembers, interviews are the unit of analysis) which shared that theme with interviews containing the second theme in the table row. For example, using the first row of Table 5, "Mastery of Software" was the top-ranked theme for "Work that was Done Well." Of all the interviews that contained this theme, 45% also contained the theme of "Self-Taught," the 5th-ranked theme for "How did you Learn what you Do Well?" Correspondingly, 88% of the interviews that contained the theme "Self-Taught" were the same interviews that said what they did well was "Mastery of Software." While the number of common responses was 21 (See Table 3 for Themes #2 and #25), 47 different interviews contained the "Master of Software" theme (21/47=45%) and 24 interviews contained the theme "Self-Taught" (21/24=88%).

When there are several key questions from a critical incident study with several resulting themes, the data analysis takes a little time to organize and present in a well-synthesized final report. The recent national DPE study involving primary computer users had four main questions with several subquestions. A total of 73 themes emerged for the 65 interviews. Once the key tables have been developed to synthesize the theme rankings and relationships, the study conclusions become a matter of interpreting what they mean in response to the key questions in the study.

Table 5
Primary Computer-Users Cross Tabulations Significant Relationships Between Work Done Well and How It was Learned

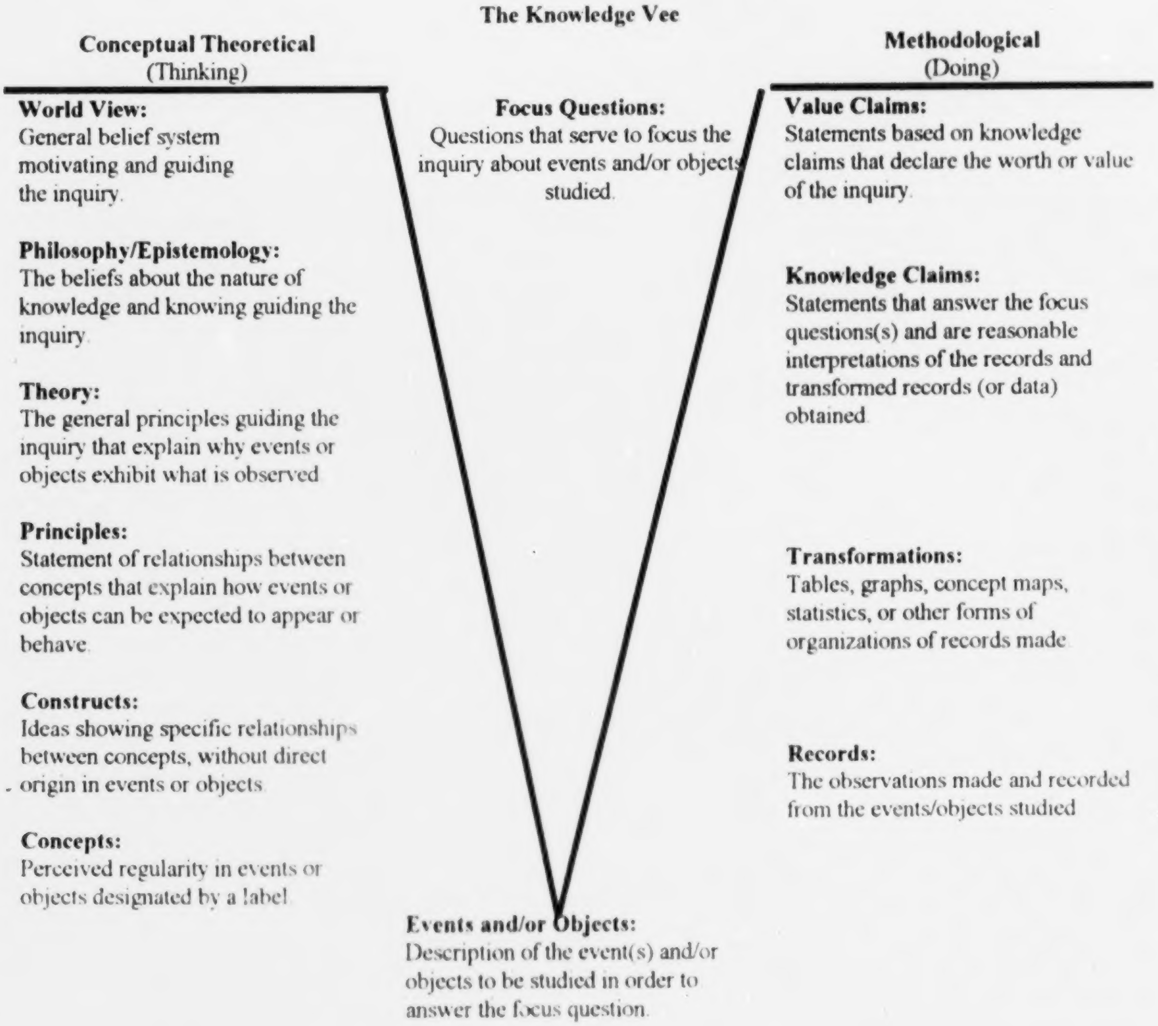
Rank	Q: What is an Example of What You Do Well?	% of Common Responses	Rank	Q: How Did You Learned This?	% of Common Responses
1	Mastery of Software	45%	5	Self Taught	88%
2	General Office Work	62%	2	Formal Classroom Training	56%
3	High Quality, Accurate Work	35%	7	Access to Individuals	53%
3	High Quality, Accurate Work	87%	1	Informal O-J-T	43%
5	Interpersonal Skills	68%	2	Formal Classroom Training	34%
8	Interpret Expectations	75%	2	Formal Classroom Training	28%
8	Interpret Expectations	50%	7	Access to Individuals	40%
9	Interpret Computer Generated Information	75%	3	Prior Formal Education	20%
9	Interpret Computer Generated Information	63%	7	Access to Individuals	33%

Drawing Conclusions from Critical Incident Data

Drawing conclusions from qualitative research projects is similar to drawing conclusions from quantitative research projects in that both require interpretation. It is important not to mistake a restatement of the findings for the conclusions of the study. Rather, it is necessary to interpret the findings while considering both the original research questions and the conceptual base for the study. What does the theory, the conceptual base, allow you to make of the findings?

To aid in answering this question, it is helpful to use a visual aid, such as Gowin's Vee (Novak, 1998, p. 82). The question of a research project is the Focus Question at the top of the Vee. At the bottom of the Vee are the Events or Objects, the Data, collected in a study to answer the Focus Question. What one says about the data depend upon how the findings are presented (the Transformations of the original data Records) which permit researchers to make Knowledge Claims based on the conceptual based described on the left side of the Vee. This conceptual base exists whether or not the researcher makes his or her assumptions explicit. However, if these assumptions and the conceptual base are not made explicit, it can be difficult to know what to make of findings—how to explain what has happened. In this workshop the conclusions from the recent national DPE research project will be used as an example of interpreting the critical incidents from primary computer users in office settings.

Figure 1
Gowin's Vee



The Knowledge Vee

Conceptual Theoretical
(Thinking)

World View:
General belief system motivating and guiding the inquiry.

Philosophy/Epistemology:
The beliefs about the nature of knowledge and knowing guiding the inquiry.

Theory:
The general principles guiding the inquiry that explain why events or objects exhibit what is observed.

Principles:
Statement of relationships between concepts that explain how events or objects can be expected to appear or behave.

Constructs:
Ideas showing specific relationships between concepts, without direct origin in events or objects.

Concepts:
Perceived regularity in events or objects designated by a label.

Focus Questions:
Questions that serve to focus the inquiry about events and/or objects studied.

Methodological
(Doing)

Value Claims:
Statements based on knowledge claims that declare the worth or value of the inquiry.

Knowledge Claims:
Statements that answer the focus questions(s) and are reasonable interpretations of the records and transformed records (or data) obtained.

Transformations:
Tables, graphs, concept maps, statistics, or other forms of organizations of records made.

Records:
The observations made and recorded from the events/objects studied.

Events and/or Objects:
Description of the event(s) and/or objects to be studied in order to answer the focus question.

Source (Novak, 1998, p. 82)

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Appendix

SAMPLE LETTERS TO RESPONDENT/INTERVIEWEE

Letter for Scheduling/Confirming Interview:

Thank you for agreeing to be interviewed for a national project that is examining the types of skills needed by office workers to learn the specific aspects of their job. This project is funded by Delta Pi Epsilon, a non-profit professional organization for business teachers. The project was award to three universities: The University of Minnesota, Louisiana State University, and the University of Georgia. The information gathered from the personal interviews will be used to help business education teachers provide instruction that will better prepare their students for a complex social work setting.

I would like to confirm our interview schedule, per our telephone conversation, for ______(date), at ______(time), in your office (______or other location) or over the telephone. This interview will take approximately 30 to 60 minutes to complete. To ensure accuracy and completeness of the information obtained, the interview will be taped. At a later date, you will be furnished with a copy of the interview transcript for you to verify its contents.

I am looking forward to working with you. If you have any questions, please feel free to contact me at________.

Sincerely,

Thank You Letter for Interview:

The time you took from your business schedule to allow me to interview you on _____(date) was very much appreciated. The information you provided will help us to better understand how office workers handle challenges and solve problems on the job. This information can be used by business teachers as part of the instructional situation their provide for their students.

The tape of our interview has been forward to Delta Pi Epsilon research project staff for transcribing. When I receive this transcript, I will either mail or bring it to you for your review.

Thank you again for your valuable time and input into this national effort.

Sincerely,

Transmittal Letter for Transcript:

Please find enclosed the transcript of your interview on ____(date) for the Delta Pi Epsilon national research project. Please read and make any comments that will correct or clarify the transcript by writing directly on the transcript. If you have any questions, please contact me at ____________(office and/or home telephone). When you have completed your comments, please contact me and I will pick up the transcript from your office.

Thank you very much for your efforts in helping us better understand how office workers learn the ropes of their job.

Sincerely,

Thank You Letter for Return of Transcript:

I have received the transcript of our interview with your comments. Thank you for taking additional time to review this transcript in order to ensure that we have the correct information.

Once again, thank you for being part of this national effort to better understand how office workers learn the specific aspects of their job. The Delta Pi Epsilon research project staff will disseminate their findings to business teachers who can consider incorporation into the instructional approach.

Sincerely,

Using Textsmart to Analyze Open-Ended Survey Research

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Abstract

TextSmart is a qualitative data analysis software package that may be classified as a code-and-retrieve program. Features of TextSmart enable the researcher to be more productive in categorizing text for identification of themes in open-ended survey responses. Categories can be customized and revised based upon the results obtained from one iteration. Then the categorical variables can be exported into Statistical Package for the Social Sciences (SPSS), and various statistics can be generated. The combined qualitative and quantitative analyses contribute to data triangulation.

Introduction

In a complex world, complex analyses that include both quantitative and qualitative research methods are sometimes warranted. A combination of the two approaches can lead to better coverage of the research question. This article describes the features and capabilities of TextSmart, a qualitative data analysis software package. TextSmart enables researchers to assign categories to text responses such as those found in open-ended survey responses.

Background

A major tenet of research is the concept of triangulation; that is, looking at a research question from more than one angle. Triangulation involves the use of multimethod research (Patton, 1990). Questionnaires often include open-ended items constructed to provide a different lens from the one used with quantitative data analysis, a lens that informs the research. Qualitative research and quantitative research methods are complementary (Schmidt, 1996).

In the past a number of researchers have spent an inordinate amount of time analyzing open-ended survey responses for themes or categories. With the introduction of the newer code-and-retrieve qualitative data analysis software packages such as TextSmart to aid in the sometimes cumbersome task of category or theme identification, a researcher can become more effective in analyzing qualitative data.

Advantages of Using TextSmart

Why would a researcher devote the time necessary to learn a new software package for qualitative data analysis? The following two advantages come to mind:

1. A richer analysis can be gained by combining the qualitative responses with the quantitative data gathered. Without the luxury of a software package that aids in the analysis of themes or categories, researchers may be reluctant to engage in an analysis of responses to open-ended items. Instead, they may simply report representative comments in the text of their research articles.
2. TextSmart is compatible with the Statistical Package for the Social Sciences (SPSS), a commonly used data analysis package. Many researchers have access to this package at their institutions. After TextSmart analysis has been conducted, the results can be exported to SPSS for the calculation of means, crosstabs, and multiple response tables.

Weitzman and Miles (1995) commented on the superiority of software programs to manual analysis methods, "Code-and-retrieve programs—even the weakest of them—are a quantum leap forward from the old scissors-and-paper approach. They're more systematic, more thorough, less likely to miss things, more flexible, and much, much faster" (p. 18).

Requirements for Using TextSmart

TextSmart must be run on a Windows95 or Windows NT platform. Using TextSmart involves following these steps: importing files, preparing the data, creating categories, refining categories, visualizing the data, refining the categories again, and exporting the results to SPSS (SPSS, Inc., 1998).

Input File Format

Care must be taken to correctly format the input file to be used in a TextSmart survey session. When constructing the input file, the first line should include the survey title. The second line should contain a question identification number, a tab, and the text of the question. The third line would include the case identification number, a tab, the question identification number, a tab, and the text of the response.

Responses are restricted to a maximum of 256 characters (SPSS Inc., 1998). To meet this restriction in response length, a researcher might consider editing the responses so that they contain only the essential elements.

Figure 1
Input File format

Business Presentations Survey

1<tab>Why did you enroll in this business presentations course?
11<tab>1<tab>I anticipated learning how to present with confidence so that I could compete in the business world.

To use TextSmart version 1.1, data must be in a tab-delimited format. SPSS Inc. (1998) has made recommendations for saving input files generated in other applications packages such as Microsoft Word/Word 97, Word Perfect 7, Microsoft Access/Access 97, and Microsoft Excel/Excel 97 files. Once input files have been saved in the appropriate file format, they may be imported into TextSmart.

Categorization

Text may be categorized in terms of single or multiple responses. Single-category coding schemes are used when responses are specific. Multiple responses result from most open ended items since they are usually broader questions.

Data can be automatically or manually categorized. A researcher might begin with automatic categorization. For automatic categorization, three categorization methods are available: term frequency only, cluster only, or both. Term frequency only uses no clustering. Categories are built using one term. This term used is not the same as the frequencies displayed in included terms. With clustering only, term determination is based upon hierarchical clustering. The third method, clustering and term frequencies, first uses clustering. Those terms not assigned to a cluster are placed individually in single-term categories (SPSS Inc., 1998).

With editing, the categories can be refined and processed. These iterations allow for extensive fine-tuning of categories. A file of aliases is used to create categories. TextSmart stems the text responses automatically. In the process of stemming, TextSmart searches for words displaying a common root. For example, an alias label of "research" might include these words: research, researchers, researches, and researching. Creating an excluded words list of those words to be ignored in the analysis helps to streamline the analysis procedure. Words that are commonly found in excluded lists include a, the, and, I, be, and were (SPSS Inc., 1998).

Outputs of Text Smart

TextSmart generates several types of output that may be useful to the researcher. On-screen output consists of five windows: response, categories, included terms, excluded terms, and the category plot. Displayed in the response window are case identification numbers and the corresponding text responses. The categories window displays a categorization results summary. The included terms lists portrays the frequencies of aliases and words used to constitute categories. The words in the excluded terms list are sorted by descending order of occurrence. The category plot depicts the relationship of terms to each other (SPSS Inc., 1998).

Besides the category plot, two other graphical outputs are available: the word frequencies bar chart and the categories frequencies bar chart. These graphical elements can be most helpful to researchers in refining categories. Once the first automatic categorization of text has been run, the included and excluded terms categories can be customized to better reflect the responses.

Implications

In essence, using TextSmart to analyze open-ended survey responses introduces another view of the data. Software packages such as TextSmart allow the researcher to go fishing—to attempt to discover what is beneath the surface, whether the discovery is a huge fish, a tiny minnow, or an old shoe. With the capability of creating customized categories for analysis, TextSmart gives the researcher a greater amount of flexibility than would perhaps be available using non-automated analysis methods. When combined with quantitative analysis, results of TextSmart analyses allow the researcher to cast a wide net and encourage data triangulation.

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The Web: Finding Nuggets in the Sand

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Abstract

The information found on the Internet has been changing and expanding rapidly in the last few years. The challenge for researchers is to evaluate the content of this information. The multistep process includes looking at the additional challenges posed by using the World Wide Web (Web) and learning how to cope with them, determining the purpose for a web page, and using evaluation criteria of accuracy, authority, objectivity, currency, and coverage to evaluate the Web document. These criteria are based upon the five traditional print evaluation criteria. Included is an evaluation sheet, lesson plan, and reference list.

Introduction

Unlike most print resources such as magazines and journals that go through a filtering process (e.g. editing and peer review), most information on the World Wide Web (Web) and the Internet is unfiltered. Nobody is overseeing the Internet and Web. This makes it particularly important for the researcher to evaluate a Web document. The researcher must cope with the special challenges of using Web resources. Identifying who or what organization wrote the Web document is an important first step. The next step is to determine the purpose of the Web document. Only then is the researcher ready to evaluate the document for usefulness in their research project.

Evaluating Web Documents

Differences and Challenges Presented by Web Resources

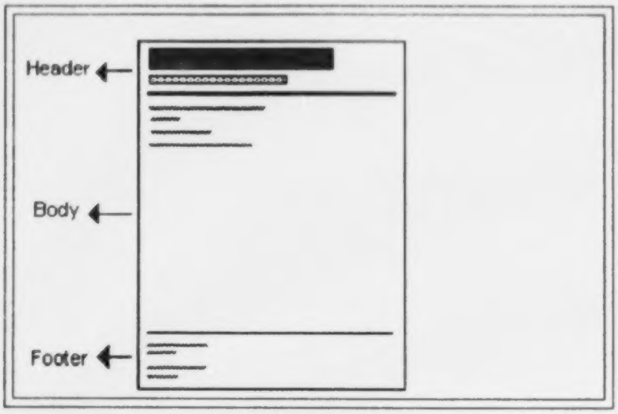
The Web poses special challenges to the researcher. The following table lists the challenges and some coping strategies which can be used.

CHALLENGES	COPING STRATEGIES
The distinction between advertising and information is often blurred.	Determine whether the information and advertising are supplied by the same individual or organization. If they are, the information is likely to be biased.
Some web pages can be considered "infommercial" or containing a blend of entertainment, information, and advertising.	View these Web pages with the same critical eye used when viewing infommercials on TV.
Web pages are often linked to other pages. The quality of the linked pages may vary from the original page.	Evaluate each web page independently.
Full access to Web information may require additional software. Some browsers may alter the appearance of Web pages.	Be aware that your software may limit how much information you receive and how the information displays.
Search engines can sometimes retrieve Web pages out of context and you may or may not be able to determine the source.	Check for a place on the page that would allow you to go to the "Home Page". The Home Page usually will give you the source.
Web pages change, move, or disappear without notice.	Document the source to the fullest extent possible and try to determine the stability of the source. Track an important source periodically.
Web pages are susceptible to accidental and deliberate alteration.	Verify the information found on a page by using other sources.

Diverse Purposes

Their are many diverse purposes for Web documents. The researcher must become a detective and try to determine the purpose for each Web document. One clue to the purpose can be found by looking at the Uniform Resource Locator or URL (pronounced *earl*). This is the "address" of the site. The other things to check are found in the Web document itself. There are three main components found in Web documents: the header, body, and footer. See Figure 1. Each part can provide valuable information for evaluating the Web document.

Figure 1
Web document components



On the Web, there are commercial enterprises trying to entertain and sell products and services. If the URL ends in **.com** or **.org** the researcher knows that this site was created by a commercial business or an organization. Some examples of this type of site are CyberDiet at http://www.cyberdiet.com/, the Sierra Club at http://www.sierraclub.org/, and IBM at http://www.ibm.com/.

There are news services presenting current information. Their URL usually ends in .com. Some examples of this type of site are a local NBC TV station at http://www.nbc.com, Reuters Limited news service at http://www.reuters.com, and USA Today at http://www.usatoday.com.

Their are advocacy groups attempting to influence public opinion (trying to sell ideas). Their URL usually ends in **.org**. Some examples of this type of site are the National Right to Life at http://www.nrlc.org, Greenpeace at http://www.greenpeace.org, and the National Rifle Association of America at http://www.nra.org.

Their are educational institutions who are presenting factual and researched based information. Their URL usually ends in .edu. Examples of this type of site are the Gallup campus of University of New Mexico at http://www.gallup.unm.edu, Tufts University nutrition navigator at http://navigator.tufts.edu, the library at UCLA at http://www.library.ucla.edu.

There are government agencies who are presenting factual and researched based information. Their URL usually ends in .gov. Examples of this type of site are the Whitehouse at http://www.whitehouse.gov, the Library of Congress at http://lcweb.loc.gov, and the Social Security Administration at http://www.ssa.gov.

The final type of document found on the World Wide Web are personal pages placed there by individuals. Because individuals in many organizations are allowed personal pages, the ending of the main URL isn't so indicative. The key to these types of pages is the use of a ~ (tilde) somewhere in the full address. Hints on identifying personal pages have been created by Elizabeth Kirk from the Milton S. Eisenhower Library at John Hopkins University and are available at http://milton.mse.jhu.edu:8001/research/education/url.html. Some examples of personal pages are David Cavanagh from Warrington, England at http://www.users.globalnet.co.uk/~dcav and the Carrick Family home page at http://www.cyberramp.net/~gcarrick.

After determining what individual or type of organization has created the Web document, the researcher needs to examine the body of the document to determine the purpose of the web page. The questions you need to ask are:

1. To what audience is the author writing? Is this reflected in writing style, vocabulary, or tone?
2. Does the material inform? Explain? Persuade?
3. What conclusions are drawn?

The next step in the process is to evaluate the document using established criteria. Evaluation criteria for print material has been in place for many years. These same criteria can be modified for the Web. They are:

*Accuracy - How reliable and free from error is the information?
*Authority - What are the author's qualifications for writing on this subject?
*Objectivity - Is the information presented with a minimum of bias?
*Currency - Is the content of the work up-to-date?
*Coverage - What topics are included in the work?
- Are the included topics explored in depth?

Evaluation Strategies

When evaluating Web sites there are questions which can be asked. The answers can be found in the page's header, body, footer, and URL address.

For determining **Accuracy** ask:

1. Are the sources for any factual information clearly listed so they can be verified in another source? (They can usually be found in the body).

2. Does the document rely on other sources which are listed in a bibliography or include links to documents themselves? (This can usually be found in the body).
3. If the document is a news page, are there editors monitoring the accuracy of the information? (These are usually found in the header or footer).
4. Is the information free from grammatical, spelling, and other typographical errors?
5. Is it clear who has the ultimate responsibility for the accuracy of the content? (This is usually found in the body or footer).

For determining **Authority** ask:

1. Is it clear who wrote the material and are the author's qualifications for writing on this topic clearly stated? (This is usually found in the footer).
2. If the material is protected by copyright, is the name of the copyright holder given? (This is usually found in the footer).
3. Is there an address and telephone number as well as an e-mail address given for the author? (They are usually found in the footer). This question is very important. If none are listed, then the researcher should be very cautious about using this information.
4. Is the name of any institution or organization listed on the page? (It is usually found in the header or footer).
5. Is there a connection between the author and publisher/server? (The server is found in the URL and the author is usually found in the footer).
6. Can you verify the identity of the server where the document resides. Internet programs such as **Dnslookup** and Internic's **Who is** will be of help. (The server address to use in these programs is found in the URL). For example, in the URL http://navigator.tufts.edu/general.html, **navigator.tufts.edu** is the server address.

After determining the authority and any affiliations of the author, ask the following questions to determine **Objectivity**:

1. Does the author present the information as fact or opinion or conjecture?
2. Does the page present more than one viewpoint or opinion?
3. Does the information show a minimum of bias?
4. Does the person or group who sponsors this web document hold a particular view or opinion? (Look at the URL and in the footer for the sponsor information). For example the Democratic party site when discussing a Republican candidate will be presenting an opposition viewpoint.
5. Is the page designed to sway opinion?
6. Is there any advertising on the page?

For determining **Currency** ask:

1. Does the document include the date(s) at which the information was gathered or created?
2. Does the document include a publication or a "last updated" page? If it doesn't you can use Netscape Navigator's "Page Info" feature in the "View" menu to determine the last modification date.
3. Does the document have a date of copyright? (This is usually found in the footer).
4. How current are the links? Have some of the links expired or moved?

For determining **Coverage** ask:

1. What topics are covered?
2. Does the site really provide information on all aspects or areas it claims to cover?
3. How in-depth is the material?
4. Does the document contain references to other electronic or print sources? Remember all sources should be cross-checked against other sources.
5. Is there an indication that the page has been completed, and is not still under construction?

Conclusion

The researcher will need to cope with the special challenges associated with using Web resources. The steps to evaluate a Web document are: (a) Determine who or what organization created the document, (b) determine the purpose of the document, and (c) use the included evaluation sheet to evaluate the document. The thing to keep in mind while using the evaluation sheet is that evaluating Web pages is an art and not an exact science. For educators who would like to teach students how to evaluate Web pages, a sample lesson plan is included.

References

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Web Evaluation Sheet

URL: ______________________________ Author: ______________________________

Purpose: __________________________ Organization: ____________________________

Accuracy
1. Are the sources for any factual information clearly listed?
2. Are other sources listed in a bibliography, or are there links to documents themselves?
3. If a news page, do editors monitor the accuracy of the information?
4. Are there grammatical, spelling, and other typographical errors?
5. Who is responsible for the accuracy of the content?

Authority
1. Who wrote the material?
2. What are the author's qualifications for writing on this topic?
3. Is the name of the copyright holder given?
4. Is there an address and telephone number as well as an e-mail address given for the author?
5. Is the name of any institution or organization listed on the page?
6. Is there a relationship between the author and publisher or server?
7. Can you verify the identity of the server where the document resides?

Objectivity
1. Does the author present the information as fact or opinion or conjecture?
2. Does the page present more than one viewpoint or opinion?
3. Does the information show a minimum of bias?
4. Does the person or group who sponsors this web document hold a particular view or opinion?
5. Is the page designed to sway opinion?
6. Is there any advertising on the page?

Currency
1. Does the document include the date(s) on which the information was gathered or created?
2. Does the document include a publication or a "last updated" page?
3. Does the document have a date of copyright?
4. How current are the links? Have some of the links expired or moved?

Coverage
1. What topics are covered?
2. Does the site really provide information on all aspects or areas it claims to cover?
3. How in-depth is the material?
4. Does the document contain references to other electronic or print sources?
5. Is there an indication that the page has been completed, and is not still under construction?

Overall Ranking: Excellent Good Fair Not Useable

Lesson Plan on Evaluating Web Sites

Type/level of class: Any

Time required: 90 minutes

Objective: The learner will use critical thinking skills to evaluate World Wide Web sites.

Procedure:

Presentation of the seven challenges and coping strategies needed to use Web resources for research.	10 min
Introduce the concepts of diverse purposes for World Wide Web sites. Use the URL to help determine the type of Web site. Discuss how to determine the purpose of a Web page.	10 min
Presenting and using Evaluation Criteria:	
Accuracy - presenting the criteria and guided practice completing evaluation sheet using actual Web sites.	13 min
Authority - presenting the criteria and guided practice filling out evaluation criteria using actual Web sites.	13 min
Objectivity - presenting the criteria and guided practice filling out evaluation criteria using actual Web sites.	13 min
Currency - presenting the criteria and guided practice filling out evaluation criteria using actual Web sites.	13 min
Coverage - presenting the criteria and guided practice filling out evaluation criteria using actual Web sites.	13 min
Reflection on the use of the evaluation sheet	5 min

Materials: PowerPoint® presentation software, computer, display panel and modem hookup
Evaluation sheet.

Delta Pi Epsilon Chapters

1936 ALPHA: New York University, New York, NY
1938 BETA: Oklahoma State University, Stillwater, OK
1940 GAMMA: Western Pennsylvania Chapter
1942 DELTA: University of Cincinnati, Cincinnati, OH
1942 EPSILON: Boston University, Boston, MA
1942 ZETA: University of North Carolina, Greensboro, NC
1945 THETA: Indiana University, Bloomington, IN
1946 KAPPA: University of Michigan, Ann Arbor, MI
1946 MU: University of Tennessee, Knoxville, TN
1947 NU: University of Kentucky, Lexington, KY
1947 OMICRON: University of Iowa, Iowa City, IA
1948 PI: Ball State University, Muncie, IN
1948 RHO: Ohio State University, Columbus, OH
1951 UPSILON: University of Mississippi, University, MS
1951 PHI: University of Minnesota, Minneapolis, MN
1953 PSI: University of Southern California, Los Angeles, CA
1953 OMEGA: George Peabody College for Teachers, Nashville, TN

1956 ALPHA GAMMA: University of Houston, Houston, TX
1957 ALPHA DELTA: Emporia State University, Emporia, KS
1958 ALPHA EPSILON: University of North Texas, Denton, TX
1958 ALPHA ZETA: Temple University, Philadelphia, PA
1963 ALPHA MU: State University of New York, Albany, NY
1963 ALPHA NU: University of North Dakota, Grand Forks, ND
1964 ALPHA XI: The City University of New York, New York, NY
1964 ALPHA OMICRON: University of California at Los Angeles, Los Angeles, CA
1965 ALPHA PI: Wayne State University, Detroit, MI
1966 ALPHA RHO: California State University, Fresno, CA
1966 ALPHA SIGMA: Arizona State University, Tempe, AZ
1966 ALPHA TAU: University of Northern Iowa, Cedar Falls, IA
1966 ALPHA UPSILON: University of Nebraska, Lincoln, NE
1967 ALPHA PHI: Northern Illinois University, DeKalb, IL
1968 ALPHA CHI: Rider University, Lawrenceville, NJ
1969 ALPHA PSI: Mankato State University, Mankato, MN

1969 BETA BETA: Southern Illinois University at Edwardsville, Edwardsville, IL
1969 BETA GAMMA: Virginia Polytechnic Institute and State University, Blacksburg, VA
1969 BETA DELTA: University of Georgia, Athens, GA
1969 BETA EPSILON: San Jose State University, San Jose, CA
1971 BETA ZETA: Indiana State University, Terre Haute, IN
1971 BETA ETA: Bowling Green State University, Bowling Green, OH
1971 BETA THETA: University of Wisconsin-Whitewater, Whitewater, WI
1971 BETA IOTA: Illinois State University, Normal, IL
1971 BETA KAPPA: Portland State University, Portland, OR
1972 BETA LAMBDA: Shippensburg University of Pennsylvania, Shippensburg, PA
1972 BETA MU: Central Connecticut State University, New Britain, CT
1972 BETA NU: Utah State University, Logan, UT
1972 BETA OMICRON: Southern Illinois University at Carbondale, Carbondale, IL
1972 BETA PI: California State University--L A, Los Angeles, CA
1973 BETA SIGMA: University of Wisconsin-Eau Claire, Eau Claire, WI
1973 BETA TAU: State University of West Georgia, Carrollton, GA
1974 BETA UPSILON: Pittsburg State University, Pittsburg, KS
1974 BETA PHI: Montclair State University, Upper Montclair, NJ
1974 BETA CHI: Western Illinois University, Macomb, IL
1975 BETA PSI: Eastern Illinois University, Charleston, IL
1975 BETA OMEGA: Louisiana Tech University, Ruston, LA

1975 GAMMA ALPHA: Eastern Michigan University, Ypsilanti, MI
1976 GAMMA BETA: College of New Jersey
1977 GAMMA GAMMA: Virginia Commonwealth University, Richmond, VA
1977 GAMMA DELTA: University of Rhode Island, Kingston, RI
1979 GAMMA ZETA: University of Southern Mississippi, Hattiesburg, MS
1979 GAMMA ETA: Middle Tennessee State University, Murfreesboro, TN
1979 GAMMA THETA: Arkansas State University, State Un, AR
1979 GAMMA IOTA: University of the District of Columbia, Mount Vernon Campus, Washington, DC
1980 GAMMA KAPPA: Murray State University, Murray, KY
1980 GAMMA MU: University of Louisville, Louisville, KY
1980 GAMMA NU: State of Alabama Chapter
1981 GAMMA XI: Bloomsburg University of Pennsylvania, Bloomsburg, PA
1983 GAMMA OMICRON: Willamette Valley, Oregon Chapter
1983 GAMMA PI: University of Arkansas, Fayetteville, AR
1985 GAMMA SIGMA: Central Michigan University, Mt. Pleasant, MI
1986 GAMMA TAU: University of Central Arkansas, Conway, AR
1986 GAMMA PHI: Central Washington University, Ellensburg, WA
1988 GAMMA CHI: University of Missouri-Columbia, Columbia, MO
1991 GAMMA PSI: East Carolina University, Greenville, NC
1992 GAMMA OMEGA: Southwest Missouri State University, Springfield, MO

1992 DELTA ALPHA: The Colorado Chapter
1994 DELTA BETA: Louisiana State University, Baton Rouge, LA
1994 DELTA GAMMA: Mississippi State University, Starkville, MS
1994 DELTA DELTA: State of Florida Chapter
1994 DELTA EPSILON: State of West Virginia Chapter
1994 DELTA ZETA: Northeast Ohio Chapter
1995 DELTA ETA: State of Wyoming Chapter
1995 DELTA THETA: New Hampshire College, Manchester, NH
1995 DELTA IOTA: Puerto Rico Chapter

DPE Meets the Challenge of Change

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